HACKENSACK PUBLIC SCHOOLS
EXCELLENCE IN EDUCATION

EMPOWERED LEARNERS

DIGITAL CITIZENS

KNOWLEDGE CONSTRUCTORS

INNOVATIVE DESIGNERS

COMPUTATIONAL THINKERS

CREATIVE COMMUNICATORS

GLOBAL COLLABORATORS

FUTURE READY PLAN
JULY 2019-JUNE 2022

Hackensack Board of Education

June 2019

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District Administration

2018-2019

Rosemary M. Marks
Acting Superintendent

Dr. Dennis Frohnapfel
Interim Business Administrator

Andrea Parchment
Assistant Superintendent

Lauren Kazmark
Director of Curriculum/NCLB Coordinator

Adrian Cepero
District Technology Coordinator

Servet Kazazi
Director of Buildings and Grounds

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Stakeholders

Name	Title/Role	Signature
Rosemary Marks	Acting Superintendent	
Andrea Parchment	Assistant Superintendent	
Christopher Moran	Principal, Jackson Avenue	
Stefanie Golam	Supervisor, ECDC	
Dr. Lauren Kazmark	Director, Curriculum	
Adrian Cepero	District Technology Coordinator	
Celso King	Assistant Principal, High School	
Dr. Anibal Galiana	Assistant Principal, Fairmount	
Judy Soto-Holland	Assistant Principal, Fanny M. Hillers	
Marcela Moncloa	Assistant Principal, Jackson Avenue	
Maureen Carroll	Media Specialist, Middle School	
Dee Kalman	STEM Teacher, Middle School	
Sara Picone	Media Specialist, Fairmount	
Carolina Betances	Math Teacher, High School	
Dr. Tara Jakubik	English Teacher, High School	
Nicole Breslin	Teacher, Jackson Avenue	
Vivian Mendez-King	Teacher, Elementary	

Executive Summary

The Hackensack School District is committed to "challeng[ing] all students to excel along their own personal learning continuum" to become "responsible, civic-minded global citizens of the 21st Century" and has invested significantly in digital learning to support this mission. The District maintains its commitment to continue providing the tools and resources needed to transform the learning experience into one that empowers students to become leaders of their own learning and positive change agents in the world around them.

While more work remains, the District has made significant progress over the past seven years to enable this change by systematically infusing digital learning and other Future Ready practices throughout the instructional and administrative fabric of the district. Digital tools are ubiquitous throughout our schools and have become a part of everyday instruction in virtually every classroom. Curriculum has been revised to include digital learning resources and STEM-related concepts, and our technology infrastructure has been vastly improved to provide the necessary foundation for transformative change to occur.

However, in order for this change to occur, we must abandon the antiquated instructional models of yesteryear in favor of a model that is more dynamic, flexible, inquiry-based and personalized. Complacency is no longer an option. Teachers and administrators are encouraged to challenge the status quo by incorporating innovative practices and not being afraid to "fail forward." We know our staff and students, who already go above and beyond, are up to the task and we invite you to join us on this journey. Let's be Future Ready together!

A Special Thank You

We would like to thank the following individuals who contributed to this plan for their passion and commitment in moving the District's Future Ready efforts forward.

Maureen Carroll, Media Specialist, Hackensack Middle School

Dr. Tara Jakubik, Teacher, Hackensack High School

Dee Kalman, Teacher, Hackensack Middle School

Vivian Mendez-King, Teacher, Nellie K. Parker

Christine Romano, Teacher, Nellie K. Parker

Kristina Deak, Preschool Master Teacher

Our Vision

Students become empowered, responsible, global citizens, leaders of their own learning and positive change agents in the technologically-complex, inter-connected world around them.

Our Mission

Our mission is to provide the resources that foster a culture and environment that enables students to become innovators, creators, critical thinkers, problem-solvers and collaborators.

Our vision and mission are grounded firmly in the beliefs that:

- Our students will be effective communicators, quality producers, self-directed lifelong learners, community contributors, collaborative workers and complex thinkers;

- All students are entitled to opportunities to maximize their talents and abilities;

- Our ethnic and cultural diversity is one of our greatest strengths and prepares students for success in a global society;

- Setting high expectations for students, teachers and administrators ensures that our students successfully meet or exceed New Jersey Student Learning Standards.

- Parents are essential partners in the education of their children;

- Maintaining a strong partnership with the Hackensack community is integral to student success;

- Understanding, implementing and responding to current trends in digital learning is intrinsic to success in a global 21st century;

- The District should have a well-trained, highly qualified and competent staff;

- The District should maintain a safe and secure learning environment.

Current State

Over the last three years, we made significant progress on virtually all goals of the 2016-2019 District Digital Learning Plan. Some of our biggest accomplishments are listed below along with an overview of our instructional and technical environment and standard operating procedures:

NJTRAx Technology Readiness

Updated: September 21, 2018

Recommended Specs (Scoring 0-9)			
Location Name	Tech	Network	Device
District	9	9	9
Hackensack High School	9	9	9
Hackensack Middle School	9	9	9
Nellie K. Parker	9	9	9
Fanny M. Hillers	9	9	9
Jackson Ave	9	9	9
Fairmount	9	9	9

NJTRAx is an interactive database developed to assist New Jersey districts and schools in assessing their technology readiness for online assessments as well as for digital learning.

Future Ready Schools

In June 2018, four of our schools -- Nellie K. Parker, Fanny M. Hillers, Hackensack Middle School and Hackensack High School -- were all awarded bronze-level (first-tier) "Future Ready" certification by the Future Ready Schools New Jersey (FRS-NJ), a joint program between the New Jersey Department of Education, the New Jersey Institute of Technology and the New Jersey School Boards Association based on the work of the national Future Ready Schools Initiative.

To achieve certification, schools have to demonstrate that they are committed to preparing their students for success in the digital age through innovative best practices

in each of the following categories: Leadership, Education and Classroom Practice and Technology.

This plan has been aligned to the Future Ready Framework to facilitate this process moving forward and over the next three years we plan to submit all of our schools for Silver-level certification with the ultimate goal of achieving Silver Plus or Gold level certification for the District.

1-to-1 District-wide

The District currently has a 1-to-1 ratio of students-to-devices in Grades K-12. All classroom teachers at the High School and Middle School levels have also been provided a Chromebook for use in and outside of school. At the Elementary and Middle School levels, each classroom was provided a cart of Chromebooks. However, in Grades 9-12, students are assigned a device that they use throughout their High School career and are able to take home. High School students that misplace, forget or are otherwise unable to use their device during the day have the ability to use loaners available through either their classroom teachers or the media center.

While teachers are not expected to use Chromebooks at all times, the availability of devices on-demand in the classroom facilitates planning and allows for dynamic, personalized learning to occur.

Classroom Technology

Most of the district's 300+ classrooms have been outfitted with an interactive whiteboard (SMART Board or SMART Panel) and a document camera (HoverCam Solo 8 or Elmo TT-12). Each year we schedule approximately 30-40 projectors to be replaced as part of on-going maintenance as units reach their end-of-life.


Interactive whiteboards are intended for student-centered learning through the use of interactive lessons and activities available online or designed using specialized software (i.e., SMART Notebook). While they may be used intermittently as a traditional presentation device, student use of the board should be its primary focus (ideally 80% student use).

With our current 1-to-1 ratio of students to Chromebooks, we were able to retire a substantial number of desktops from classrooms in Grades 2-12. However, in most rooms we left one desktop in addition to the teacher station for student use, printing and as a backup. In Kindergarten and 1st Grade, desktops are maintained for student use as an additional option for teachers and to allow for the development of the basic technology/motor skills necessary to effectively use Chromebooks on a regular basis. Apple iPads were also purchased for Pre-K as a classroom resource.

Curriculum

Over the last three years, much work has been done to re-write and align our district curriculum to both the New Jersey Student Learning Standards as well as the ISTE NETS Standards for Students (reflected in NJSLS 8.1) and to integrate STEM courses and concepts throughout all grade levels. At the elementary schools, Digital Citizenship and Makerspace curricula were introduced through the Media Centers and select classrooms. At the Middle School, STEM courses/labs were created with the ultimate goal of creating a STEM pathway that would lead into High School. In these courses, students are able to basic coding, bring content to life using augmented reality (AR) and virtual reality (VR) and work with robotics. Students are also exposed to a full Makerpace curriculum that introduces design-thinking and other STEM-related concepts. Students have access to Raspbery Pi's, 3D Printers and other cutting-edge engineering and design tools. In addition, a new Intro to Computer Science course was created at the High School to introduce coding to all students regardless of prior knowledge and

experience.
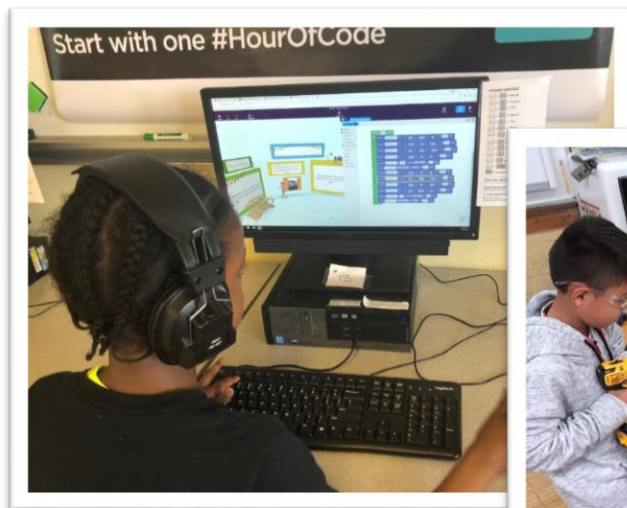
HMS student block coding

HMS Students working in the new Makerspace Classroom

Special Needs, Bilingual/ESL and Gifted and Talented

Part of the mission of the Hackensack Public Schools is to ensure "all students are entitled to opportunities to maximize their talents and abilities." To this end the Department of Technology maintains a robust network infrastructure that allows for our general education, special needs, gifted and talented and Bi-lingual/ESL students to access any technology resources needed and recommended for their individual needs.

The District has implemented amplified classrooms, special keyboards and mice, Apple iPads, and interactive white boards in various Special Education classrooms; Special Needs (including "At-Risk") and Bilingual/ESL students utilize specialized web-based applications that include individualized tutorials and intervention services prescribed through adaptive assessments; Bilingual/ESL students also utilize specialized software to assist with language decoding and acquisition skills; and Gifted and Talented students participate in STEM-based activities using Lego Robotics Kits in the elementary schools and coding projects at the Middle School.

The Department of Technology is available for consultation to child study teams, school caseworkers, teachers, administrators, and parents during the development of student IEP's. Assistive technology recommendations are then forwarded to the Department of Technology for approval and when possible, incorporated into all subsequent district technology purchasing. All technology purchasing is NIMAS compliant and follows the Universal Design for Learning (UDL) framework.

Network Infrastructure/Capacity

The success of our Digital Learning initiatives is highly dependent on the availability of a stable, high-speed network infrastructure that can meet the "anytime, anywhere" demands of over 5,700 students and 850 staff members utilizing over 9,000 networked devices.

The Hackensack Public Schools Department of Technology has developed a highly-capable, centralized network of schools and offices interconnected via District-owned Fiber connections. Main Distribution Frames (MDFs) in each building are connected to each Intermediate Distribution Frame via Fiber[1] as well. All classrooms and offices have at least one (1) CAT5e network connection with a 5- or 8- port switch to provide connectivity to multiple wired devices. All classrooms now also have a wireless access point that can support up to 30-40 mobile devices concurrently (optimally). Currently, the District has a 1 Gb/s internal network capacity down to the classroom level (for hard-wired devices)[2].

The District utilizes a "hub-and-spoke" topology with all buildings (spokes) connecting to the Hub located at the High School via private fiber connections or in the case of our early childhood center, ECDC, via tunneling over a dedicated Gigabit connection. At the hub, we currently have a core switch capable of up to 40 Gb/s of network bandwidth that handles all District-wide routing, several physical and virtual servers, Storage Area Network devices for staff file storage and data backup, and content filtering/endpoint appliances to handle firewalling, threat management, and CIPA compliance. All buildings with the exception of our early childhood center, ECDC, share a primary 2 Gb/s internet connection, which currently has an optimal 40% average utilization during peak times (8:30 AM – 11:00 AM) with a secondary Gigabit connection as fail-over at the Middle School.

Over the past three years, we were able to leverage a substantial amount of E-Rate funding to replace our core routers at the High School and Middle School as well as all of our switches in the MDF's and IDF's of each building. We were also able to upgrade our primary internet connection from 1Gb/s to 2Gb/s at a savings of $1,250 per month)

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[1] Currently all internal fiber is capable of bandwidth up to 10 Gb/s.

[2] Mobile device bandwidth depends on the device's wireless capability as well as the distance from - and current throughput of - the associated access point as well as interference and other environmental factors.

by joining the DRLAP Broadband Initiative through the Educational Services Commission of New Jersey (ESCNJ). To support this increase in bandwidth we replaced and upsized both our district firewall and in-line content filter to handle 10Gb/s of throughput.

In order to support the growing needs of the district and reduce the risk of a single-point of failure, we upgraded our District hub by installing modular, self-contained cabinets that house all of our network equipment, storage and servers and provide cooling as well as fire suppression. Additionally, to mitigate the risk of a prolonged power outage, an emergency generator was also installed.
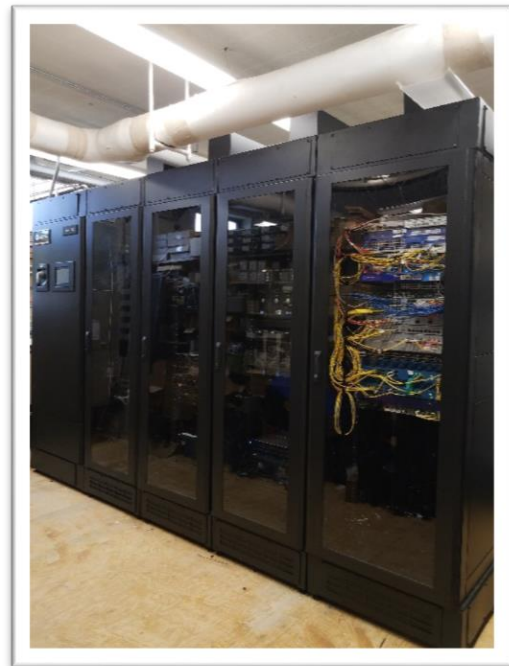
Modular cabinets in High School Hub

Wireless Connectivity

In support of the various 1-to-1 initiatives throughout the District and computer-based State testing, between 2012 and 2015 Meraki cloud-based wireless access points were installed in virtually every classroom in the District as well common spaces such as auditoriums, gymnasiums, cafeterias and outdoor fields. Our goal was to outfit each area with an access point in order to better support one-to-one learning.

During the 2016-2017 and 2017-2018 school years, the District was able to use E-Rate Category 2 funding to significantly offset the cost of upgrading all wireless access points with newer, AC-standard Gigabit access points. Additional access points were also added in areas where coverage was deemed inadequate and to other non-instructional spaces such as offices and hallways.

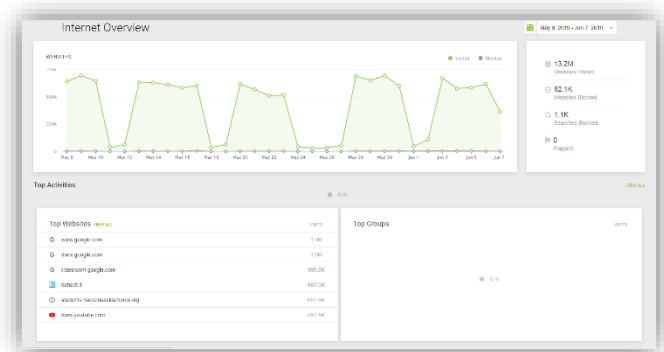## Network Monitoring and Filtering

The District has a centralized, "hub and spoke" network topology, which means all schools connect to the internet through a single internet connection housed at the District hub (located in the High School). At this endpoint, we monitor and filter all content and traffic using an endpoint solution to both ensure CIPA compliance and add an extra layer of security.

All District-owned devices assigned to staff or students (i.e. iPads, laptops, Chromebooks) are filtered even while "off" the District network through a cloud-based content filter.

By default, staff members have less filtering than students when logged in using their Hackensack network account. They also have the option/ability to approve/unblock YouTube video content for viewing by students. Currently, staff can request to have individual websites/domains "unblocked" District-wide (for student use) through an online form. All requests are evaluated on an individual basis by the District Technology Coordinator or his designee and addressed within 24-48 hours or sooner if possible.

The District regularly re-evaluates (and improves) its content filtering system to better support the increased internet bandwidth and number of users/devices added each year and to ensure staff and students have adequate access to educational resources. While planning is encouraged when using digital resources, it is understood that personalized digital learning is a much more organic and dynamic process and therefore, requires flexible filtering that shifts more control to the educators in the classroom.

Internet and device usage is currently monitored through several methods. Both our firewall and content filter provide daily, weekly and monthly reporting on activity and trends; Lightspeed Relay is utilized to monitor and safeguard District Chromebook usage in and outside the District network; and Gaggle provides Gmail and Google Drive CIPA compliance for students as well as safety monitoring. Relay and Gaggle are both used to also ensure compliance with District Acceptable Use Policies.

Lightpseed Relay filtering dashboard

In alignment with our 2016-2019 goals, we have increased monitoring both at the gateway through our Palo Alto Firewall, which provides real-time threat analysis and vulnerability scanning, and through the use of What's Up! Gold, a networking monitoring tool that gives us real-time information on key network-connected equipment and devices. This allows us to keep a better eye on network utilization and potential problems to reduce disruptions and even security threats.

Data Security and Privacy

Security is a priority for the District as hackers have increased both the frequency and sophistication of attacks on educational institutions in recent years. Historically, education has lagged behind other industries in implementing safeguards for network and data security. However, as more and more of our daily lives rely on digital tools and resources, this is now an area that requires a significant amount of attention. While no system is impenetrable, safeguards can be put in place to mitigate exposure, risk and ultimately, loss.

The District uses a combination of physical and logical controls to protect internal networks and systems. These practices have been codified over the past two years and are now detailed in our **District Data Privacy and Security Guidelines** and our **Standard Operating Procedures**. Staff that work with data are trained on privacy and security best practices upon hire and throughout the year.

More information is also available on the District Website by visiting https://www.hackensackschools.org/privacy.

District Policies

As digital learning evolves so must the policies in place that clearly define acceptable and inappropriate uses of available technology and services to ensure protection of student and staff rights as well as District property and services. Those policies include:

- 2361 - Acceptable Use of Computer Networks/Computers and Resources (M)
- 7523 - School District Provided Technology Devices to Students
- 2363 - Student Use of Privately-Owned Technology
- 7522 - School District Provided Technology Devices to Staff Members
- 3283 - Electronic Communications Between Teaching Staff Members and Students (M)
- 2360 - Use of Technology (General)

Policies are reviewed at least once per year to ensure they are both relevant and adequate. Revisions and additional policies are recommended as needed to ensure adequate access to resources while simultaneously reducing the District's and its staff's and students' exposure to both liability and potential harm. The District's policy manual, which is maintained by Strauss Esmay Associates, is also frequently updated to reflect changes in state and federal laws and regulations.

Paperless Classroom/Offices

Over the past three years the District has been able to reduce printing by more than 20%. In an effort to further reduce costs and limit the District's environmental impact, the District plans to continue cutting paper consumption and print activity significantly over the next three years by encouraging a "paperless classroom" where teachers "digitize" as much of their resources/materials as possible.

Over the next three years, we plan to:

- Reduce the number of inefficient stand-alone printers;

- Implement a document management solution for school and district offices;
- Utilize rules-based printing software to monitor and optimize print activity throughout the District;
- Default to double-sided printing (where available); and
- Encourage staff to scan more documents to email/network folders

While this will ultimately lead to lower costs and maintenance, it will also ensure we are setting a positive example for our students on how to care for the environment responsibly.

Technology Maintenance

The Department of Technology is tasked with ensuring the availability of technology resources and services to support digital learning. While the number of devices in the District has increased exponentially in the last seven years, the department has managed to absorb this growth with minimal expansion. While not an exhaustive list, we current support approximately:

Device Type	Total
Chromebooks	8,350
Desktops/Laptops	1,209
SMARTBoards/Panels	312
Projectors	300
Document Cameras	222
Desktop Printers	430
Copiers/MFPs	40
Phones	659
Security Cameras	595
Access Control Doors	35
Managed Switches	50
Servers (Application/File/Print)	55*
Access Points	442

*20 physical servers and 35 virtualized.

All technology[3] through-out the District is maintained by the following personnel:

- **Four (4) field technicians**
  A technician was added in 2017-2018 to support the explosive growth in devices the district has seen over the past 6 years (approximately 8,000 devices have been added). One technician is dedicated to the High School and the others share the Middle School, four elementary schools and ECDC.

- **One (1) Administrative Assistant/1-to-1 Student and Parent Liaison**
  Supports our 1-to-1 initiative at the High School by managing distribution and collection of devices, processing warranty claims and contacting parents/guardians when necessary.

- **Systems Administrator**
  Supports the growing number of systems and servers that need to be monitored, maintained and managed. We currently maintain 55 servers and several hosted systems such as G-Suite, which needs to be managed regularly and is the sole method of managing all of the district's Chromebooks, and our Lightspeed Relay content filter, which needs to be frequently monitored and adjusted.

- **Network engineer**
  Supports the network infrastructure for our data, security and telephony networks, which includes our firewall, switches, wireless access points, cameras, servers, phones, etc.

- **District Technology Coordinator**
  Oversees all District-wide Future Ready/technology initiatives and operations, conducts long range planning.

Maintenance

Desktop and Laptop computers are routinely scanned for viruses, re-imaged and updated to ensure reliability. District-owned Apple iPads and Chromebooks are maintained via mobile device management solutions to ensure compliance with District acceptable-use policies and standards.

Technology staff perform regular preventative maintenance on desktops and projectors to improve their lifespan. Older generations of projectors and Smartboards that are no longer performing efficiently or are showing signs of failure are replaced on an ongoing

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[3] District MFP's, or copiers, and LaserJet printers are currently maintained through a Managed-Print Services contract with United Business Systems (as of May 2019). This service provides toner as well as technical support by way of a 1-800 number available on each machine. Department of Technology staff does assist with installation of toners and troubleshooting if needed.

basis. All traditional desktops/workstations will be evaluated for replacement based on the "Guidelines for Obsolescence" set forth in Appendix I.

Chromebooks and iPads are evaluated for replacement based on published End-of-Life schedules and State testing requirements.

Warranties

Desktops and laptops are covered by three-year on-site extended warranties purchased from the manufacturer or re-seller. All Apple devices such as iPads, iMacs, and MacBooks are minimally covered by the standard three-year AppleCare+ protection plans, which cover repairs and accidental damage.

Spares/Loaners

The Department of Technology maintains spares of certain types of equipment for emergency replacements and temporary loaning including desktops, laptops, printers, projectors, network switches, and iPads. It is recommended that all initiatives involving large purchases of technology for instructional use dedicate an additional 10% of inventory for replacement and loaning purposes.

Technology Support Services

Technology support in the district is provided from two different approaches (Instructional and Technical) and at various levels within each approach.

Instructional Support

Support provided to aid in implementation of educational technologies during instruction including pedagogy, best practices, and resource development, is provided through the use of educational consultants, content-area supervisors, teacher leaders, Library Media Specialists and Department of Technology staff. We offer the following levels of instructional support:

- I. Remote Support
  - By phone or email
  - Webinars/Tutorials
- II. On-site support
  - Job-embedded or in-class coaching
  - Professional development workshops
  - Planning/Grade-level meeting support

Staff at each school have access to an online discussion forum through Google Classroom for on-going support and a resource portal with links to tools, sample lessons, tutorials, and forms.

The District has made a significant push over the last two years to make professional development more relevant to teachers by promoting the use of teacher-led, Ed-Camp-style professional development events which allow teachers to choose from multiple offerings that better fit their needs/interests.

Technical Support

Support provided to aid with technology and infrastructure issues including malfunctioning devices or computer systems, internet connectivity, software installation and support, and equipment setup, is provided primarily by the Department of Technology through a web-based help request system according to the following levels:

    I.   Remote Support
- By phone or email (Helpdesk)
- Remote desktop control/software deployment

    II.   On-Site Support
- Field Technicians/Network Engineer
- 1-to-1 Service Center (based in the High School)

Telecommunication Services

Telephony:

As part of an ongoing District goal to improve security and communication throughout our schools, the district upgraded its telecommunications system in the 2014-2015 school year to a full Voice-over-IP (VoIP) system that provides the district with the necessary and effective telecommunications it requires for the future. Phones were added in every classroom and in gymnasiums and auditoriums.

Analog phone lines were maintained at each location for fax, alarm and emergency purposes.

In February 2019, for both cost-savings[4] and security reasons, the District replaced its hosted VoIP system with an on premise Mitel phone system. The on premise system

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[4] The District initially chose a hosted-VoIP platform, where all equipment and service was invoiced on a monthly basis as a "service," to benefit from 80% E-Rate Category 1 reimbursement. In 2015 the FCC issued an E-Rate Modernization Order, which called for the phasing-out of reimbursements for phone service through the E-Rate program over a three-year period. The District conducted an analysis and determined that an on-premise system would save the District money over time and provide for additional security-related enhancements such as integration with overhead paging and a lockdown/emergency notification system.

will allow for seamless integration with a planned emergency lockdown notification system.

Physical Security

In line with the District's goal of "maintaining a safe and secure learning environment", the District will continue to implement and improve various physical security measures throughout District buildings, including:

- **Surveillance cameras/systems at all District buildings**
  Currently the District has approximately 600 cameras throughout its 7 campuses (an increase of nearly 250 cameras since 2016) with plans to add more.

- **Staff and student badges**
  All staff have been assigned RFID-enabled photo-identification badges, which are also used to open doors and clock-in. Students are provided basic identification cards.

- **Visitor tracking/management systems.**
  Systems are in use at the Middle School and High School and will be introduced to all buildings.

- **Time-clock systems at each building for staff.**
  District plans to upgraded to a more robust, dedicated time and attendance platform with in-depth reporting for more pro-active monitoring of trends and issues.

- **Unified access control systems at each building**
  Currently only 30 doors have access control throughout the District. To improve security and emergency access during emergencies, the District plans to add access control to all doors at each building.

- **Emergency Notification and Management System**
  The District is currently implementing a district-wide lockdown/emergency notification system that can be triggered from any phone in the district and will immediately notify

2019-2022 Future Ready Focus Areas

Below are some key areas the District Future Ready Committee has designated as priorities for 2019-2022.

Personalized and Authentic Learning

Personalized and authentic learning experiences provide students with a well-rounded educational experience by meeting their individual needs and interests while also exposing them to real-world problems and scenarios -- allowing them to apply theory to practice, which is instrumental in growing the minds of our learners. Students also have more agency in their curricular/learning paths, which increases student engagement and ownership of their learning.

> ➢ What is an authentic learning environment?
> ➢ The Effect of Authentic Learning Approach in Social Studies Teaching on the Academic Success

Flexible Use of Space and Time

Mobile school furniture, such as chairs and desks with wheels, will provide students with more diverse learning experiences. Quick cues will facilitate the change in learning spaces. For example, students can quickly arrange their desks in a circle for a socratic seminar; they can "turn and talk" to a partner; and they can work in groups. Additionally, making physical room in a school for "third spaces" such as libraries, study rooms, testing spaces, tinker labs, yoga rooms, zen gardens, etc. allow students to find respite during the day, explore in a collaborative environment, or even experience the outdoors. For example, it would be ideal to have separate library/media center space and learning/studying spaces, especially for times when libraries/media centers are closed due to testing.

> ➢ The Room Itself Is Active: How Classroom Design Impacts Student Engagement
> ➢ Transforming Library Spaces

Reinforcing Basic Technology Skills

Through our one-on-one technology initiative, students have access to a full range of productivity tools, yet there is a need to reinforce typing and basic computer skills, which despite most students today having been born into a world with Smartphones, many do not possess. This also contributes to (and further exacerbates) the "digital divide," where students from economically disadvantaged homes do not get the exposure to basic technology as their peers, which becomes an academic and eventually a career obstacle. Suggestions include embedding small amounts of classroom instruction devoted to these skills throughout all the grade levels. However, it would be most efficient to teach these skills in the context of a class, such as being able to understand how to access and identify a URL when you are doing research.

➢ [Five Tips for Teaching Typing and Why It's Essential](#)
➢ [Typing Tips: The How and Why of Teaching Students Keyboarding Skills (Comparison Of Free Sites)](#)

Equitable Access to Learning

Students should have "anywhere, anytime" access to the digital tools and resources they need for success. At school, every student has access to the internet and a device, yet there are students who do not have internet/Wi-Fi access at home, making it challenging to complete homework, writing assignments, and/or conduct research outside of the school building. Investing in initiatives such as mobile hotspots, loaner devices, and library resources all improve access for students.

➢ [From Forty-to-One to One-to-One: Eliminating the Digital Divide and Making Equity Actionable](#)
➢ [Strong Collaborative Relationships for Strong Community Schools](#)

Coaching and Mentoring

Coaching and mentoring programs will enhance the strength of our instructional staff in our district by providing timely, relevant and ongoing professional development. And allowing for collaboration, by way of common planning time, will streamline communication among colleagues who teach the same subject and/or grade level. In addition, cross-curricular coaching and mentoring allows instructional staff to learn new teaching strategies from additional perspectives. We will focus on developing "teacher-

leader" coaches at each building that can dedicate time to provide one-on-one support to other teachers and even building administrators on how to effectively leverage digital tools and resources.

➢ The Impact of Time Spent Coaching for Teacher Efficacy on Student Achievement
➢ Mentoring Practices to Keep Teachers in School

Digital Learning Instructional Frameworks

Understanding the myriad of digital learning pedagogical frameworks that drive instruction such as SAMR, TPACK and 4Shifts is critical to the efficacy of our initiatives. This understanding helps educators recognize when they are truly transforming learning and ultimately give them more confidence in their methods. In addition, consistency among expectations will foster a shared vision of digital learning.
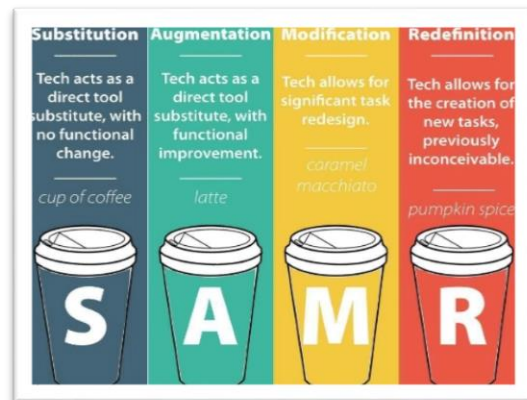
➢ Snapshot 2019: A review of K-12 online, blended, and digital learning
➢ Twenty-First Century Creativity: An Investigation of How the Partnership for 21st Century Instructional Framework Reflects the Principles of Creativity

Community Engagement

As the old adage goes, "It takes a whole village to raise a child." By engaging the community in our schools we will strengthen the teaching and learning process by providing our students with authentic, real-world learning experiences. Our focus will be to increase outreach to parents and the broader community including local businesses and organizations, to showcase the outstanding work our students do on a regular basis and encourage participation in school events and class projects.

➢ Beyond the Classroom Wall: Community Engagement Instruction
➢ Strong Collaborative Relationships for Strong Community Schools

Needs Assessment

The District based its needs assessment on various sources of information including:

- An online survey at both the school- and district-level on technology needs;
- Informal observations;
- Anecdotal feedback from staff, students and parents;
- State and district reports;
- NJTRAx Technology Readiness Score
- Recommendations from the District Future Ready Committee;
- Published guidelines from the New Jersey Department of Education and other major organization such as SETDA, ISTE, the Alliance for Education and Future Ready Schools;
- Industry trends and best practices;
- Review of current and past work orders and help requests;
- Regular internal evaluation of services by the Department of Technology

A survey was conducted to assess the needs of educators in regards to digital learning, which included professional development, access to technology equipment, software, and support.   Questions ranged from simple uses of basic technology tools to more advanced digital learning concepts and skills.

Leadership Needs

- Embed technology/Future Ready goals in District Strategic Plan.
- Improve parent/community engagement through use of social media and other digital tools.
- Partner with community organizations for collaboration on district goals.
- Provide for more common planning time in schedules for teachers to collaborate with grade level and content area peers.
- Implement educational technology coaches or teacher leaders to provide just-in-time instructional support and job-embedded professional development.

Education and Classroom Practice Needs

- Provide for more opportunities in district curriculum for authentic learning experiences.
- Increase professional development offerings focused on digital tools.
- Provide more opportunities for teacher-led, Ed Camp-style professional development offerings.

- Provide professional development on digital learning frameworks (i.e. SAMR, 4Shifts) and embed expectations in walkthroughs and observations.
- Provide additional curriculum/standards-aligned digital resources.
- Provide coaching to model effective digital teaching and learning practices and assist teachers with planning.
- Provide instruction to students on basic technology operations and skills.

Technology and Support Needs

- Increase internet bandwidth to meet SETDA recommendations by Sept. 2021.
- Replace/upgrade aging building-to-building fiber connections to support current and projected bandwidth demands and create a more resilient topology with multiple paths to each location.
- Upgrade/Replace aging network technology in MDF's and IDF's as needed.
- Add wireless access points as identified through wireless verification surveys.
- Add wireless gateways at each building as fail-over in the event of catastrophic failure of the district WAN.
- Maintain a redundant, diversified internet connection at the Middle School to ensure maximum availability of resources and to prevent a network "single-point-of-failure." (For more information on improvements needed to guarantee availability of network resources, see "Facilities Infrastructure" below)
- Add/replace/upgrade file and storage servers to meet demands and ensure high availability of digital resources.
- Additional wireless radios for 2-way communication at ECDC
- Upgrade PA systems at Fanny M. Hillers, Fairmount and Hackensack High School and augment all PA systems by adding speakers to areas that currently lack coverage such as bathrooms, stairwells and offices.
- To ensure maximum availability of resources, the District will need to improve its secondary[5] hub by upgrading or adding the following:
  - Fire suppression system
  - Additional battery backups to protect systems against power failures
  - Additional Security Measures
  - Tiled flooring
  - Independent Climate Control
- Provide training to technicians on best practices and new technologies.
- Provide on-going security training to all staff to mitigate breaches and/or data loss.
- Perform annual network security audits to identify vulnerabilities and mitigate risk.

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[5] Middle School IT Room has been designated as secondary hub for District.

Goals and Objectives for 2019-2022

Goal 1: Hackensack Public Schools will meet all the requirements for Future Ready Silver Plus or Gold[6] Certification by June 2022.

> **Objective 1:** All Hackensack Public Schools will maintain or achieve "Exemplary" status on all *Leadership* Priority 1 and 2 indicators and "Achieving" or higher on all Priority 3 indicators by June 2021.

FRS-NJ Indicator of Future Readiness	Organizational Level	Priority
A Culture of Innovation, Collaboration, and Empowerment	District	1
Board-Approved Future Ready Plan	District	1
District Virtual Identity	District	1
Sustaining a Digital Learning Environment	District	1
Communication Plan, Guidelines, Outreach, and Reflection	District	2
Established Budgeting Process for Digital Learning	District	2
Measuring Success Using Data	District	2
Community Joint Activity Planning	District	3
Review and Revision	District	3
Systems Information Diagram and/or Table	District	3
A Shared Vision for Digital Learning & Citizenship	School	1
Culture of Capacity Building	School	2
Professional Learning to Support Integrated Instruction	School	2
Connected Leaders	School	3
Local and Global Outreach	School	3
Student Access to Technology Beyond the School Day	School	3

> **Objective 2:** All Hackensack Public Schools will maintain or achieve "Exemplary" status on all *Education and Classroom Practice* Priority 1 and 2 indicators and "Achieving" or higher on all Priority 3 indicators by June 2021.

FRS-NJ Indicator of Future Readiness	Organizational Level	Priority
Coaching and Mentoring	District	3

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[6] If available. Gold District Certification was first announced by Future Ready Schools NJ in November 2018 but implementation was delayed until further notice.

FRS-NJ Indicator of Future Readiness	Organizational Level	Priority
Authentic Learning	School	1
Digital Assessment	School	1
Digital Citizenship	School	1
Digital Learning Tools and Content	School	1
Student-Driven, Self-Directed Learning	School	1
Communicating and Celebrating 21st Century Learning	School	1
Computer Science	School	2
Personal Learning Network	School	2
Professional Learning Plan	School	2
Flexible Instruction Process	School	2
Student Choice	School	2
Extended Learning Outside the School Day	School	3
Blended Learning	School	3
Ongoing Reflection and Refinement	School	3
Student Personalized Learning Plans	School	3

Objective 3: All Hackensack Public Schools will maintain or achieve "Exemplary" status on all *Technology Support and Services* Priority 1 and 2 indicators and "Achieving" or higher on all Priority 3 indicators by June 2021.

FRS-NJ Indicator of Future Readiness	Organizational Level	Priority
Access Point Signal Saturation	District	1
Data Governance	District	1
Data Security and Privacy	District	1
Intranet/Internet Network Availability	District	1
Operational Best Practices	District	1
Adequate Support and Services for Digital Learning	District	2
Data-Informed Decision Making Process	District	2
Inventory Management Solution	District	2
Process for Adequate and Responsive Technical Support	District	2
Proper Decommissioning	District	2
Servers	District	2
Staff Awareness	District	2
Lifespan and Refresh Cycle Planning	District	3
Process for Effectively and Efficiently Vetting New Infrastructure Technology	District	3
Process for Effectively and Efficiently Vetting New Instructional Technology	District	3
Equitable Access	School	2

Goal 2: Hackensack Public Schools will maintain a safe and secure learning environment for staff and students through the use of technology-based security improvements as identified through security/threat assessments.

Goal 3: Hackensack Public Schools will reduce its overall carbon footprint through the use of "green(er)," more efficient technologies and by shifting more to more environmentally-friendly, digital processes and resources by June 2022.

   Objective 1:   Reduce printing and paper consumption by at least 20% by June 2022.

Three-Year Activity Plan

#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
1	All	Maintain school-based Future Ready teams to develop school Future Ready action plans that address needs identified through the Future Ready Certification process and include a professional development plan for teachers in all grade levels and content areas as well as building administrators. (See Appendix II for a complete list of responsibilities)	Ongoing	Principals	-Meeting Agendas -School Action Plan -Roster of planning team
2	Goal 1 – Objectives 1-2	Continue to build teacher capacity through targeted professional development strategies. • Provide ongoing, teacher-led professional development on new digital learning tools and their applications including assistive technologies for Bilingual/ESL and special needs students. • Provide online portal with links to relevant resources, sample lessons and tutorials.	Ongoing	-Curriculum Director/PD Coordinator -Principals -District Technology Coordinator -Director of Special Education -Director of Bilingual/ESL -School-based Digital Learning Team	-PD calendar or list of PD offerings -PD agendas/sign-in sheets -PD session evaluations -Portal screenshot -Forum log
3	Goal 1 – Objectives 1-2	Continue to build administrators' capacity to evaluate effective digital teaching and assessment practices through targeted professional development strategies.	Ongoing	-Curriculum Director/PD Coordinator -District Technology Coordinator -Director of Special Education -Director of Bilingual/ESL	-PD calendar or list of PD offerings -PD agendas/sign-in sheets -PD session evaluations -completed observations -Forum log

#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
4	Goal 1 – Objectives 1-2	Continue to provide professional development and support to enhance teachers' and administrators' technological literacy and digital learning skills. • Unpacking ISTE NETS • Focus on evaluating/reflecting using research-based digital teaching frameworks (i.e. 4Shifts, SAMR, TPACK).	Ongoing	-Curriculum Director/PD Coordinator -Principals -District Technology Coordinator -School-based Digital Learning Team	-PD calendar -List of PD offerings -PD session agendas -PD session attendance -PD session evaluation -results of tech literacy and tech implementation assessments
5	Goal 1 – Objectives 1-2	Maintain learning management system (Google Classroom) for students, teachers, and administrators to facilitate communication, professional development, mentoring, and collaboration.	Ongoing	District Technology Coordinator	-screen shot of website
6	Goal 1 – Objectives 1-2	Secure and maintain a partnership with a local university/organization to provide sustained on-going support for the professional development of teachers and administrators in acquiring and implementing teaching, learning and leadership practices needed in Digital Learning environments.	October 2019-Ongoing	-District Technology Coordinator -District Future Ready Committee -Curriculum Director	-Meeting minutes -Log of PD sessions
7	Goal 1 – Objective 2	Continue "teacher leader" professional development model where tech savvy teachers provide training and mentoring to their peers.	Ongoing	-District Technology Coordinator -District Technology Planning Committee -Principals	-District Job-embedded Professional Development Catalog

#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
8	Goal 1 – Objectives 2-3	Continue to provide professional development and support to teachers and administrators on data-driven decision-making. • Use data from multiple assessments to target instruction and revise curriculum as needed • Analyze/Correlate data sets for students stored on the District's student information and assessment systems. • Use digital learning tools (i.e. Edulastic, Forms) to design/conduct formative assessments and gather real-time data.	Ongoing	-Director of Curriculum -District Data Facilitator/Coach -District Technology Coordinator -Principals	-PD calendar -Agendas -Session evaluations
9	Goal 1 – Objectives 1-3	Maintain current online assessment system (Edulastic) to collect, manage and analyze student performance data.	Ongoing	-District Technology Coordinator -Director of Curriculum	-purchase order -data reports
10	Goal 1 – Objectives 1-2	Continue to provide professional development to teachers and administrators on how to use technology to improve communication with students and parents using the following tools: • Google Classroom • SchoolMessenger • School Website • Social Media	Ongoing	-District Technology Coordinator	-List of offerings -Examples of notifications
11	Goal 1, Objective 1	Explore redesigning District website or transitioning to a different platform to improve content accessibility, visibility and ease of editing.	FY 19-20	-Future Ready Committee -District Technology Coordinator -Superintendent	-Meeting Agenda -Minutes -Proposals

#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
12	Goal 1 – Objectives 1-2	Maintain subscriptions as needed (based on annual VOI reviews) to the following digital learning applications for teacher/student use: • BrainPop (K-8) • RazKids (K-4) • LearningA-Z (K-4) • iRead (K-2) • Newsela (3-11) • Edulastic (K-12) • Discovery Streaming (K-12) • SRI (K-12) • SMI (5-8) • Read180 (5-12 Special Needs and At-Risk students) • SPI/System 44 (Bilingual students) • Turnitin.com (9-12)	Ongoing	-District Technology Coordinator -Director of Curriculum -Supervisors -Building Principals -Director of Bilingual/ESL -Director of Special Education	Purchase Orders Usage Logs/Reports
13	Goal 1 – Objectives 1	Provide training opportunities for parents on various digital learning topics to encourage giving students access at home, including: • Digital resources to support your child's learning • Cyber-safety including (safeguarding identity and how to monitor/manage your child's online activity)	Ongoing	-District Technology Coordinator -Bilingual/ESL Parent Liaison -School-based Digital Learning Teams	-List of offerings
14	Goal 1 – Objective 3	Continue upgrading/replacing obsolete and malfunctioning classroom technology such as: • SMART Boards/Panels • Projectors • Desktop Computers (Grades K-1) • Document Cameras (Hovercams) • Chromebooks	Ongoing	-District Technology Coordinator	-Purchase orders

#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
15	Goal 1 – Objectives 1-2	Continue to provide opportunities for students with special needs to participate in digital learning environments that include appropriate assistive technologies such as: • Touch-sensitive devices for interaction and communication; • Hearing aids and amplification devices that enable hearing-impaired students to hear what's going on in the classroom; • Glare-reduction screens, screen magnifiers, and Braille note-taking devices that enable visually impaired students to participate more fully; • Voice-recognition software that turns the spoken word into type on a computer screen so students unable to move their limbs can take part; and • Technologies that enable severely disabled students to control their computers simply by following letters and commands on the computer screen with their eyes.	As needed based on IEP's	-Director of Special Services -District Technology Coordinator -Classroom Teachers	-IEP recommendations -Purchase orders
16	Goal 1 – Objectives 1-2	Continue to provide opportunities for Bi-lingual/ESL students to participate in digital learning environments that include appropriate assistive technology and/or applications such as: • Translation/Dictation tools/applications • Interactive Books • Visual Brainstorming/Story-telling tools/applications • Literacy-, Phonemic Awareness- and Comprehension-building applications	Ongoing	-Director of Bilingual/ESL -District Technology Coordinator -Classroom Teachers	-Purchase orders -Lesson Plans -Student Products
17	Goal 1 – Objective 3	Maintain 1-to-1 Service Center at High School.	Ongoing	District Technology Coordinator	-completed work orders -Satisfaction surveys

#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
18	Goal 1 – Objective 1	Continue to provide identified students with mobile hotspots to support learning outside of school at the High School and expand program to middle and elementary schools	Ongoing	-District Technology Coordinator -School AP's	-PO -Quotes for K-8
19	Goal 1 – Objective 3	Review and update District technology policies to reflect current trends and include emerging technologies to ensure students and staff have necessary access to educational resources while safeguarding data privacy.	Ongoing	District Technology Planning Committee	-Approved updated policies
20	Goal 1 – Objective 1	Maintain and expand web-based District resource portal to provide additional online resources for instruction and professional development and information on emerging trends and best practices.	Ongoing	-District Technology Coordinator	-Screenshot of website
21	Goal 1 – Objective 3	Sustain number of field technicians to ensure availability of technical support to schools and offices.	Ongoing	District Technology Coordinator	-Employee contracts -Completed work orders
22	Goal 1 – Objective 3	Continue to provide various technical support options including: • Remote support • Phone support (help desk) • Online help-request system • Managed-print services (printer repair and toner supply)	Ongoing	District Technology Coordinator	-Support Logs

#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
23	Goal 1 – Objectives 1-3	Continue to provide various instructional support options including: • Coaches or teacher-leaders to provide instructional support and professional development to staff on how to effectively analyze/use data and integrate technology into instruction. • Online/on-demand training/professional development. • On-site professional development by District staff and/or consultants • Online webinars	Ongoing	-District Technology Coordinator -Director of Curriculum -Coaches	-List of PD library/offerings -Coaching logs
24	Goal 1 – Objectives 2-3	Increase District internet bandwidth to 6 Gb/s, or 1Gb per 1000 users, by July 2022 to meet growing network demands and SETDA standards.	Ongoing	District Technology Coordinator	-Purchase orders -Utilization reports
25	Goal 1 – Objective 3	Maintain secondary internet connection from a different ISP at Middle School for redundancy/fail-over and load-balancing.	Ongoing	District Technology Coordinator	-Purchase orders
26	Goal 1 – Objective 3	Add second Nutanix cluster at Middle School hub to support future initiatives and provide real-time backup/redundancy.	July 2020	District Technology Coordinator	-Purchase orders
27	Goal 1 – Objective 3	Add additional storage at High School and Middle School hubs for storage of staff/student files and replication of existing data.	Ongoing	District Technology Coordinator	-Purchase orders -Disk space usage reports
28	Goal 1 – Objective 3	Refresh obsolete/aging network equipment including routers, switches and servers.	Ongoing	District Technology Coordinator	-Purchase Orders -Published EOL
29	Goal 1 – Objective 3	Upgrade/Replace aging fiber connections between buildings to create a more resilient mesh or ring topology and support increased network demands.	July 2022	District Technology Coordinator	-Board Resolution/Purchase Order -Completed Maps

#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
30	Goal 1 – Objective 3	Conduct annual comprehensive network security assessments to identify weaknesses	Annual	District Technology Coordinator	-Security Assessment Findings
31	Goal 1 – Objective 1	Evaluate initiatives to determine sustainability/funding.	Annual	District Technology Coordinator, District Future Ready Committee, Director of Curriculum, Content-Area Supervisors	-TCO Analysis -Budget
32	Goal 2	Continue to provide cellular service to designated District administrators and technical support staff for communication and security purposes.	Ongoing	District Technology Coordinator	-Invoices
33	Goal 2	Maintain District-wide time and attendance system with proximity card readers at each building to accurately monitor building staff attendance for security and auditing purposes.	Ongoing	-District Technology Coordinator -Principals	-Time clock reports
34	Goal 2	Maintain VoIP telephony system to improve security and communication throughout District buildings and with parents.	Ongoing	District Technology Coordinator	-Purchase order(s) -Project plan/scope of work
35	Goal 2	Maintain wireless radio system for 2-way communication throughout buildings and across the District by key personnel.	Ongoing	District Technology Coordinator, Director of Buildings and Grounds	-Wireless radio inventory -Maintenance Agreement
36	Goal 2	Maintain Gaggle Safety Monitoring for student Google Accounts.	Ongoing	-District Technology Coordinator	-PO -Reports
37	Goal 2	Implement/Maintain (911 Inform) Emergency Notification and Management System	Ongoing	-District Technology Coordinator -District Security Committee	-Maintenance PO -Drill Logs

#	District Goal and Objective	Strategy/Activity	Timeline	Person Responsible	Documentation
38	Goal 2	Add access control to all exterior doors currently without access control for monitoring and access by emergency personnel.	September-June 2021	-District Technology Coordinator	-PO -Security Maps
39	Goal 2	Upgrade, replace and add surveillance cameras as needed to ensure full coverage of interior and exterior of buildings as indicated through security assessments.	Ongoing	-District Technology Coordinator -District Security Team	-Security Recommendations -PO -Security Maps
40	Goal 2	Replace/Augment PA Systems to include bathrooms, stairwells, offices and other areas as identified through security assessments	September 2019- June 2021	-District Technology Coordinator -District Security Team	-Security Recommendations -PO -Security Maps
41	Goal 3	Implement document management solution to reduce reliance on paper-based files and work-flows. • Begin with Business Office in July 2019, HR in September 2019 and Special Education by January 2020.	July 2019-Ongoing	-District Technology Coordinator -Business Administrator -Director of Special Education	-PO -Reports
42	Goal 3 -- Objective 1	Explore shifting printing to more efficient and cost-effective MFP's to reduce number of stand-alone printers.	July 2019-Ongoing	-District Technology Coordinator	-Printing reports
43	Goal 3 – Objective 1	Implement rules-based printing to limit size of print jobs that can be sent to stand-alone printers by redirecting large jobs to MFP's.	September 2019	-District Technology Coordinator	-Reports
44	Goal 3	Incorporate energy-efficiency as a criterion when evaluating technologies and initiatives such as Chromebooks, servers, switches, etc. to reduce waste/power consumption.	Ongoing	-District Technology Coordinator	-Reports

Professional Development Strategies

Educators

The District will expand teachers' and administrators' expertise in how to use Digital Learning tools and more importantly, how to wisely enable students to apply them in their learning by providing staff with professional development that is:

- Ongoing/Sustained;
- Just-in-time;
- Job embedded;
- Teacher-led;
- Needs-based;
- Tiered (Beginner/Advanced);
- Instructionally-focused (less technical, more pedagogical); and
- Aligned to District curriculum and/or NJ State Student Learning Standards as well as ISTE NETS standards for teachers and administrators (Appendix III and IV, respectively).

Professional development will be provided in-person or through the use of live/recorded webinars. The District will continue to identify tech savvy teachers and administrators at each building that will provide training and mentoring to their peers via a "teacher leader" model, and school-based digital learning teams will further facilitate professional development at the school-level by meeting regularly to assess progress and needs. This will be complemented by on-demand training resources and webinars available through the District Resource Portal (http://www.hpsnet.org).

All professional development activity in the District is cataloged and logged using PDPlanner, an online professional development management system. Through this system, evaluation feedback can be gathered from event participants to review overall effectiveness and relevance of the topic/material presented as well as any suggestions for additional or future sessions.

Technical Staff

The Department of Technology will continue to support the professional growth of its own technical staff through online training resources, monthly staff meetings and vendor-conducted trainings/webinars. Additionally, the Department of Technology will continue to contract with providers offering on-demand video trainings as well as on-site and off-site training and/or certifications for major brands and products.

In addition to technical training, the District Technology Coordinator will provide staff development of process methodologies including but not limited to ITIL, CoBIT, and Six Sigma.

Application of Assistive Technologies

Staff from the departments of Special Services, Bilingual/ESL and Technology, visit schools regularly and help in assistive technology implementation wherever it is needed. Professional Development will be provided by vendors of specialized technologies and in-district staff when possible. Online resources such as implementation guides and video tutorials are also available for on-demand viewing.

Teachers can make requests for support to their school-based Future Ready Team, which will review the student's needs, consider teacher recommendations, and reevaluate resources as needed. Fulfillment of these requests is coordinated by either the Department of Special Services or Bilingual/ESL (depending on the specialized program) and the Department of Technology.

Reflect and Adjust

<u>Potential barriers to success:</u>

- Administrator/Teacher buy-in of vision, plan and/or initiatives (resistance to change)
- Funding changes
- Adequate staffing (both instructional and technical)
- Competing initiatives both in-District and State-mandated

The District will regularly evaluate Future Ready progress in the following ways:

A. The Technology Department will conduct internal annual reviews of services based on:
   - Online surveys of staff, students and parents;
   - Anecdotal feedback and observations;
   - Past work orders/help requests; and
   - Usage logs

B. Monthly meetings between Director of Curriculum, department supervisors, building administrators and the District Technology Coordinator to review and refine initiatives.

C. All new and existing initiatives will be reviewed to determine benefits and sustainability.

D. District Future Ready Committee will meet several times a year (see proposed schedule below) to review Future Ready progress and refine activity and professional development plans.

   Review will be based on:
   - Feedback from school-based Future Ready teams
   - Feedback from professional development activities
   - Feedback from Technology Department review
   - Feedback from monthly administration meetings
   - Relevant changes in digital learning technology and pedagogy (equipment and best practices)
   - Requirements of District, state and federal initiatives
   - Future Ready Schools – New Jersey Certification feedback/results

Any proposed changes/additions will be submitted for Board review and approval as needed.

Proposed Timeline for Review of Digital Learning Plan Activities

Date*
September 25, 2019
November 20, 2019
January 29, 2020
May 13, 2020
September 23, 2020
November 18, 2020
January 27, 2021
May 12, 2021

*Dates may be subject to change.

Budgeting

This District technology budget includes all technology-related expenditures for the entire district and is created using "zero-based" budgeting, ensuring that all requested items are evaluated and justified annually, with the exception of multi-year agreements/leases.

Budgeting is done in collaboration with the various departments in the District and is aligned to the Three-Year Future Ready Plan through meetings of the District Future Ready Committee.

Major purchases/projects are evaluated using the district's Value-of-Investment methodology, which is loosely based on CoSN's VOI Methodology. To calculate the VOI the district first calculates the project's Total Cost of Ownership (TCO) – as best as possible --, which includes direct and indirect (hidden) costs.

Direct costs are generally planned within the budget and include any equipment being purchased, consumables, spare parts, upfront training, expected/routine maintenance and installation. **Indirect costs** are ancillary costs that can sometimes be difficult to measure or quantify and include downtime, repair shipping, additional training, cost of electricity and employee labor costs for service and/or training.

The TCO is then compared to our current expenditures, if the purchase or initiative is meant to replace or improve an existing system. If no comparable exists, the TCO must be weighed against the expected outcomes to determine the VOI. If a comparable does exist, the difference in projected cost is weighed against the expected gains.

The goal of this process is to encourage goal-setting, data analysis and reflection when implementing initiatives or projects.

Guidelines for Obsolescence

In devising guidelines for planned obsolescence the following facts are considered:

The software that is needed determines the specifications of the hardware required:

- ✓ Software drives Hardware
- ✓ Newer hardware has requirements that obsolete old software.
- ✓ Hardware and Operating Systems drive available software.

For the District to operate cohesively and to reduce support burdens we need standardization such as:

- ✓ Standardized Operating Systems
- ✓ Standardized Antivirus Software
- ✓ Standardized Office Productivity Platform

Hardware:

Computer technology can be divided into "generations or stages". These are listed from newest to oldest.

Premium Stage:

This generation is high cost. It is marketed towards high-end software requirements. This generation will soon be "industry standard" and significantly cheaper. There must be a specific curricular reason for the district/school/office to purchase this generation of equipment since it will soon be Industry Standard.

Current Industry Standard:

The standard is CPU technology that the industry is producing in quantity for the corporate/consumer market. Historically a computer of this generation is between $800 and $1000. This cost should include a three year warranty, which is a district recommendation for all new computer purchases. Equipment of this generation has a good cost vs. life expectancy ratio for the district.

One Generation Old:

One generation from the Current Industry Standard. Evaluation of this generation depends on the leap of technology between this and the current industry standard generation. In general, speed is most likely the issue for this generation running the latest software. In some cases spending the money to upgrade this generation (i.e. RAM) may make sense.

Two Generations Old:

Current software will most likely not run on this generation. In most cases this generation is not cost effective to upgrade or repair (depending on the component).

Three Generations Old:

Current software will not run on this generation. Usefulness in district is limited and must be carefully evaluated considering support resources (i.e. personnel). This generation may be considered obsolete.

The above stages comprise a typical "**lifecycle**" of a computer.

The lifecycle of a computer begins with a **planning stage**. During this stage of the computer's lifecycle, the requirements for the new computer are identified. This is an important step in the process and should not be overlooked. There is no set timetable for this stage, but it should take long enough to fully plan for the arrival and foreseeable future of this computer.

The second stage of the computer's life is the **setup and early use stage**. This stage will identify most of the problems with the new system. This stage is also the most expensive of the entire process. This is when the computer and required accessories are purchased. This stage lasts about 6 months to a year, and starts when the computer arrives.

The third stage of the cycle is the **use stage**. This stage is where the computer is to be considered viable and updates are usually warranted if the need arises. This stage lasts about 3 years, assuming a 5-year lifespan (based on NJ guidelines).

The fourth stage of the cycle is the **late use stage**. This stage is where the computer is past the warranty period, but still has some use left. Any updates to the system should be very carefully evaluated, as it may be more profitable to wait for a new system. This period lasts 1 to 2 years, depending on lifespan.

The last stage of the lifecycle is the **replacement stage**. This stage covers what is going to occur to the outgoing station. This stage matches very closely to the first stage of the next computer, and might be considered the same.

Our "planned obsolescence" takes into account the "**lifecycle**" of a computer and the five "**generations**" of computers. This "Obsolescence Plan" drives the budget process.

There is a simple formula that can be used to determine the annual budget for computer equipment. The recommendation of this plan for schools, departments, offices, and district-wide is to purchase computers on a rotating schedule, based on the expected lifespan of each computer. This will ensure that the computers in each location are all within their lifespan, and the budget will not be overburdened in a particular year.

This is based on the following formula:

$$Annual\,Replacement = \frac{Number\,of\,Computers}{Expected\,Years\,of\,Service}$$

For example, if you have 10 computers and expect them to last 5 years, then you should replace the 2 oldest computers every year.

$$\frac{10\,Computers}{5\,Expected\,Years\,of\,Service} = Replace\,2\,Computers\,per\,Year$$

Eventually, this regular replacement will ensure a stable, predictable computing environment. A stable environment will reduce costs dramatically and reduce downtime.

These guidelines are merely a recommendation for assessing needs and planning for the replacement of equipment. They are flexible and not mandated. Other variables may affect budget plans during a school year. Priorities may also change from year to year based on local, state and federal initiatives and new technologies and best practices may emerge that do not fit these guidelines. Manufacturer-published End-of-Life dates may also impact lifespan.

Expected Years of Service

Technology	Warranty	Useful Life[7]
Desktops (OEM)	3 years	6 years
Laptops/Chromebooks (New)	3 years	5 years
Desktops/Laptops (Refurbished)	3 years	4 years
Projectors	2 years	5 years
SMARTBoard	5 years	10 years
Network Equipment (Firewall, Routers, Switches, etc.)	5 Years	5 Years

[7] Based on published life expectancies and experience. Depends on use.

School-Based Future Ready Teams

Purpose: To assist in the systematic integration of digital learning teaching and learning practices throughout their school in alignment with the Future Ready Schools-NJ certification program and national Future Ready framework, the ISTE National Educational Technology Standards, New Jersey Student Learning Standards, and the District 3-Year Future Ready Plan.

Suggested Team Members:

- Administrator
- Library Media Specialist
- Professional Development Coordinator
- Technology Teacher
- 2 Content Area Teachers

Any of the above members may be substituted where position is vacant or non-existing. Additional members may be added at the discretion of the school administration. Student representation is highly recommended.

Goals and Responsibilities:

- Develop 3-Year school-specific goals and objectives aligned to District 3-Year Future Ready Plan.
- Develop and execute annual Future Ready Plan aligned to school and district plan goals and objectives which specifies all activities and strategies to be conducted throughout school year including person(s) responsible and evaluation methods.
- Meet regularly to plan technology integration, assess progress, allocate resources, and address teacher and student needs.
- Plan and conduct professional development activities including but not limited to workshops, in-services, in-class coaching, and professional learning communities to meet needs of staff.
- Maintain and manage inventory of school technology resources.

ISTE STANDARDS
FOR STUDENTS

1. Empowered Learner

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:

a. articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.
b. build networks and customize their learning environments in ways that support the learning process.
c. use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
d. understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.
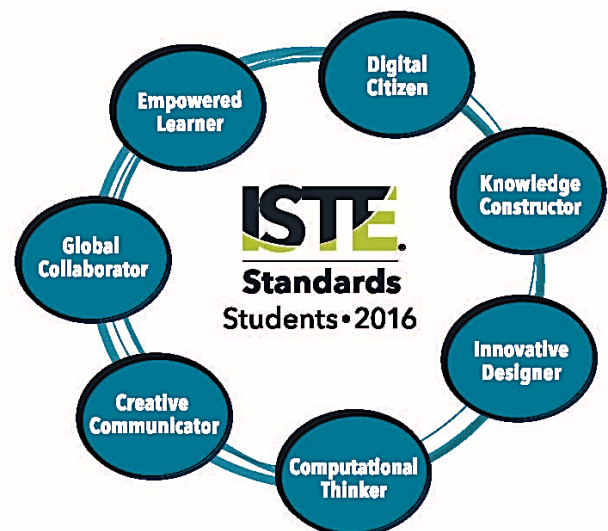
2. Digital Citizen

Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical. Students:

a. cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
b. engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.
c. demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
d. manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

3. Knowledge Constructor

Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others. Students:

a. plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
b. evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.
c. curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
d. build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

ISTE Standards Students • 2016

Empowered Learner · Digital Citizen · Knowledge Constructor · Innovative Designer · Computational Thinker · Creative Communicator · Global Collaborator

4. Innovative Designer

Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions. Students:

a. know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
b. select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
c. develop, test and refine prototypes as part of a cyclical design process.
d. exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

5. Computational Thinker

Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions. Students:

a. formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
b. collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
c. break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.
d. understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

6. Creative Communicator

Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals. Students:

a. choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
b. create original works or responsibly repurpose or remix digital resources into new creations.
c. communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
d. publish or present content that customizes the message and medium for their intended audiences.

7. Global Collaborator

Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally. Students:

a. use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.
b. use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.
c. contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.
d. explore local and global issues and use collaborative technologies to work with others to investigate solutions.

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ISTE STANDARDS
FOR EDUCATION LEADERS

1. Equity and Citizenship Advocate

Leaders use technology to increase equity, inclusion, and digital citizenship practices. Education leaders:

a. Ensure all students have skilled teachers who actively use technology to meet student learning needs.
b. Ensure all students have access to the technology and connectivity necessary to participate in authentic and engaging learning opportunities.
c. Model digital citizenship by critically evaluating online resources, engaging in civil discourse online and using digital tools to contribute to positive social change.
d. Cultivate responsible online behavior, including the safe, ethical and legal use of technology.

3. Empowering Leader

Leaders create a culture where teachers and learners are empowered to use technology in innovative ways to enrich teaching and learning. Education leaders:

a. Empower educators to exercise professional agency, build teacher leadership skills and pursue personalized professional learning.
b. Build the confidence and competency of educators to put the ISTE Standards for Students and Educators into practice.
c. Inspire a culture of innovation and collaboration that allows the time and space to explore and experiment with digital tools.
d. Support educators in using technology to advance learning that meets the diverse learning, cultural, and social-emotional needs of individual students.
e. Develop learning assessments that provide a personalized, actionable view of student progress in real time.

2. Visionary Planner

Leaders engage others in establishing a vision, strategic plan and ongoing evaluation cycle for transforming learning with technology. Education leaders:

a. Engage education stakeholders in developing and adopting a shared vision for using technology to improve student success, informed by the learning sciences.
b. Build on the shared vision by collaboratively creating a strategic plan that articulates how technology will be used to enhance learning.
c. Evaluate progress on the strategic plan, make course corrections, measure impact and scale effective approaches for using technology to transform learning.
d. Communicate effectively with stakeholders to gather input on the plan, celebrate successes and engage in a continuous improvement cycle.
e. Share lessons learned, best practices, challenges and the impact of learning with technology with other education leaders who want to learn from this work.

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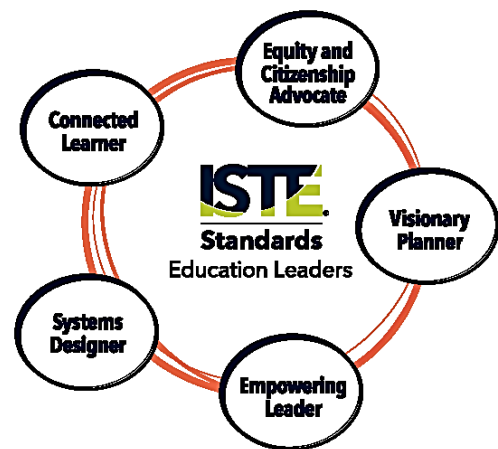
4. Systems Designer

Leaders build teams and systems to implement, sustain and continually improve the use of technology to support learning. Education leaders:

a. Lead teams to collaboratively establish robust infrastructure and systems needed to implement the strategic plan.
b. Ensure that resources for supporting the effective use of technology for learning are sufficient and scalable to meet future demand.
c. Protect privacy and security by ensuring that students and staff observe effective privacy and data management policies.
d. Establish partnerships that support the strategic vision, achieve learning priorities and improve operations.

5. Connected Learner

Leaders model and promote continuous professional learning for themselves and others. Education leaders:

a. Set goals to remain current on emerging technologies for learning, innovations in pedagogy and advancements in the learning sciences.
b. Participate regularly in online professional learning networks to collaboratively learn with and mentor other professionals.
c. Use technology to regularly engage in reflective practices that support personal and professional growth.
d. Develop the skills needed to lead and navigate change, advance systems and promote a mindset of continuous improvement for how technology can improve learning.

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The 4 Shifts Protocol

A. Deeper Thinking and Learning. Deeper learning schools are moving from an overwhelming emphasis on students mostly doing lower-level thinking tasks—factual recall and procedural regurgitation—to students more often engaging in tasks of greater cognitive complexity—creativity, critical thinking, problem solving, and effective communication and collaboration. In other words, students are living more often on the upper levels of Bloom's taxonomy (or Webb's Depth of Knowledge) than the lower ones.

Domain Knowledge. Is student work deeply rooted in discipline-specific and -relevant knowledge, skills, and dispositions?

        Yes   No   Somewhat

        Deeper Learning. If yes, is student work focused around big, important themes and concepts[1] that are central to the discipline rather than isolated topics, trivia, or minutiae?

                Yes   No   Somewhat

[1] Do student learning activities and assessments go beyond low-level facts and procedures? Are students just regurgitating syntheses and analyses provided by an information source or the teacher?

Critical Thinking. Do learning activities and assessments allow students to engage in deep critical thinking and analysis?

        Yes   No   Somewhat

Problem Solving. Do learning activities and assessments allow students to engage in complex and messy (not simple) problem solving?

        Yes   No   Somewhat

Creativity. Do students have the opportunity to design, create, make, or otherwise add value that is unique to them?

        Yes   No   Somewhat

Metacognition. Do students have the opportunity to reflect on their planning, thinking, work, and progress?

        Yes   No   Somewhat

        If yes, can students identify what they're learning, not just what they're doing?

                Yes   No   Somewhat

Assessment Alignment. Are all assessments aligned cognitively[2] with standards, learning goals, instruction, and learning activities?

        Yes   No   Somewhat

[2] Standards and learning goals drive everything, including depth of student thinking and the necessary accompanying assessments. Assessments should be aligned to the cognitive complexity asked of students.

B. Authentic Work. Deeper learning schools are moving from isolated, siloed academic work to environments that provide students more opportunities to engage with and contribute to relevant local, national, and international interdisciplinary communities. Students begin fostering active networks with individuals and organizations for mutual benefit.

Real or Fake. Is student work authentic and reflective of that done by experts outside of school?

Yes   No   Somewhat

Authentic Role. Are students asked to take on an authentic societal role as part of their learning?

Yes   No   Somewhat

Domain Practices. Are students utilizing authentic, discipline-specific practices and processes?[3]

Yes   No   Somewhat

[3] Engaging in the actual practices and processes that people in that discipline use; for example, doing what historians, scientists, writers, artists, business professionals, and others do, not some artificial or classroom version of that work

Domain Technologies. Are students utilizing authentic, discipline-specific tools and technologies?[4]

Yes   No   Somewhat

[4] Using the actual tools and technologies that people in that discipline use; for example, using the real tools that historians, scientists, writers, artists, business professionals, and others use, not some artificial or classroom versions of those tools

Research and Information Literacy Strategies. Are students utilizing authentic, discipline-specific research, inquiry, and information literacy strategies?

Yes   No   Somewhat

Authentic Assessment. Are students creating real-world products or performances for authentic audiences?

Yes   No   Somewhat

Contribution. If yes, does student work make a contribution to an audience beyond the classroom walls to the outside world?

Yes   No   Somewhat

Assessment Technology. Are digital technologies being used in authentic ways to facilitate the assessment process?

Yes   No   Somewhat

C. Student Agency and Personalization. Deeper learning schools are moving from classrooms that are overwhelmingly teacher controlled to learning environments that enable greater student agency—ownership and control of what, how, when, where, who with, and why they learn. Student agency allows for greater personalization, individualization, and differentiation of the learning process.

Learning Goals. Who selected what is being learned?

        Students   Teachers   Both

Learning Activity. Who selected how it is being learned?

        Students   Teachers   Both

Assessment of Learning. Who selected how students demonstrate their knowledge and skills and how that will be assessed?

        Students   Teachers   Both

Talk Time. During the lesson or unit, who is the primary driver of the talk time?[5]

        Students   Teachers   Both

[5] Who's doing most of the talking, determining who can talk and when they can talk?

Work Time. During the lesson or unit, who is the primary driver of the work time?[6]

        Students   Teachers   Both

[6] Who's making the decisions about the work time and ensuring progress?

Interest-Based. Is student work reflective of their interests or passions?

        Yes   No   Somewhat

Initiative. Do students have the opportunity to initiate, be entrepreneurial, be self-directed, and go beyond the given parameters of the learning task or environment?

        Yes   No   Somewhat

Technology Selection. Who selected which technologies are being used?

        Students   Teachers   Both

Technology Usage. Who is the primary user of the technology?

        Students   Teachers   Both

D. Technology Infusion. Deeper learning schools are moving from local classrooms that are largely based on pens and pencils, notebook paper, ring binders, and printed textbooks to globally connected learning spaces that are deeply and richly infused with technology. The new affordances of mobile computing devices and online environments allow the first three shifts mentioned here to move into high gear.

Communication. How are students communicating?

       Alone[7]   In pairs   In triads   In groups larger than three

       If with others, with whom? (circle all that apply)

              Students in this school   Students in another school   Adults in this school
              Adults outside of this school

[7] Working in isolation (no communication with others) or perhaps just communicating with the teacher (for example, call and response)

Communication Technologies. Are digital technologies being used to facilitate the communication processes?

       Yes   No

       If yes, in which ways? (circle all that apply)

              Writing   Photos and images   Charts and graphs   Infographics   Audio   Video
              Multimedia   Transmedia

Collaboration. How are students working?

       Alone[8]   In pairs   In triads   In groups larger than three

       If with others, with whom? (circle all that apply)

              Students in this school   Students in another school   Adults in this school
              Adults outside of this school

       If with others, who is managing collaborative processes (planning, management, and monitoring)?

              Students   Teachers   Both

[8] Working in isolation (no communication with others) or perhaps just communicating with the teacher (for example, call and response)

Collaboration Technologies. Are digital technologies being used to facilitate collaborative processes?

       Yes   No   Somewhat

       If yes, in which ways? (circle all that apply)

              Online office suites   Email   Texting   Wikis   Blogs   Videoconferencing
              Mind mapping   Curation tools   Project planning tools   Other

Technology Adds Value. Does technology add value so that students can do their work in better or different ways than are possible without the technology?

       Yes   No   Somewhat

Technology as Means, Not End. When digital technologies are utilized, do the tools overshadow, mask, or otherwise draw the focus away from important learning?

       Yes   No   Somewhat

Digital Citizenship. Are digital technologies utilized by students in both appropriate and empowering ways?[9]

       Yes   No   Somewhat

[9] Effective digital citizenship conversations focus on both safe, responsible use *and* empowering, participating use. Digital citizenship discussions ideally are natural extensions of and accompaniments to students' ongoing, technology-enabled work rather than separate conversations or curricula.

Board Resolution