

SOLVAY

UNION FREE SCHOOL DISTRICT

**2015-2019
Technology
Plan**

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Solvay Union Free School District Mission Statement.

We develop confident, continual learners who are caring community members.

To achieve this mission the Solvay schools community will use the following strategies:

- Provide a nurturing environment that cultivates creativity and offers opportunities to discover and learn.
- Provide opportunities for students to develop and practice effective interpersonal skills.
- Provide experiences that enable students to succeed in a changing society.

Technology Plan Team Members

Name	Position	Location
Diane Grimsley	SysOp/Computer Lab TA	Elementary School
Adrian Threat	LAN Tech	High School/District-Wide
Mike Lanckton	Tech Coordinator	Middle School/District-Wide
Eric Larison	Asst Superintendent for Instruction	District Office
Karen Henry	Asst Superintendent for Business	District Office
Jay Tinklepaugh	Principal	High School
Paula Kopp	Principal	Middle School
Neil Gottlieb	Asst Principal	High School
Mike Emmi	Science Teacher	High School
Heather Turner	Librarian	Middle School
Kevin Davis	Math Teacher	Middle School
Rick Kulibert	Tech Teacher	Middle School
Solvay PTO	Parents	All Schools
Matthew Dean	Director of Technology	District Office

Current Inventory and Assets

- 673 Windows Desktops
 - Classrooms, Offices, Labs
- 157 Laptops (Mac/PC)
 - Carts, Classrooms, Labs, Staff Assigned
- 638 Chromebooks
 - Carts, 6th Grade Classrooms, Staff Assigned
- 441 Apple iPads
 - Carts, Staff Assigned

6th Grade 1:1 Chromebook Pilot

The 2015-16 school year Solvay Middle School 6th grade class demoed 1:1 model for the first time. During the process the district used a robust wireless network that was imperative to the success of the pilot. The teacher and students found that having the devices right in the classrooms saved on time travelling to shared computer labs or pushing bulky mobile carts into classrooms.

All students grade 3-12 have Google Apps accounts managed by Solvay UFSD. The benefit of the accounts is that students can utilize the Chromebooks during their time at school and can access their Google Apps account from anywhere with an Internet connection. Extending the learning time outside the normal school day.

Smart Schools Bond Act (SSBA)

Infrastructure Upgrades

The district will leverage the allocation of the SSBA money to purchase infrastructure upgrades that will allow for strong interconnectivity between the end user and the Internet or shared network resources.

Recommendations:

- Upgrade all remaining 1GB switches to 10GB switches across the network. This will future proof us for at least the next 5 years.
- Would need to upgrade the wireless at SES and SHS to match what the SMS currently runs. Meraki Wireless is a robust cloud-based controller-less solution that has been working great at the middle school for almost a year.
- Total cost to upgrade network switches and wireless ~ \$200,000

Classroom Technology

The district will continue to phase in a multiyear approach to bring current technology to the hands of our teachers and students. The district will continue to leverage the power and scalability of Google Classrooms. Training for staff will come from Professional Development from the CNYRIC Instructional Technology Department. Acclimating students to computers at an early age will allow to be comfortable using computers and prepare them for computer based testing (CBT).

Recommendations:

- The district has a multiyear plan in place to refresh new technology (Chromebooks) every three years.
- Training for both faculty and student to make sure they are making the most of the technology at hand.

Area of Emphasis One

Adopt Technology Learning Standards

Goal

To align the districts instructional practices using the International Society for Technology in Education (ISTE) standards to create benchmarks for student development.

Expectations

At the end of each of the school year Solvay students should be proficient with ISTE Standards per performance indicators and should have opportunities to demonstrate throughout the school year.

Technology Standards and Performance Indicators for Students

The technology standards for students are divided into six broad categories. These standards provide a framework for creating age appropriate performance indicators. They are meant to clearly define the district's expectations for students. They will be implemented within all curricular areas and connected to the content of that area. The standards were created by the International Society for Technology in Education (ISTE) and updated in 2007. These standards are in the process of being updated for the summer of 2016. We will update our technology plan when those new standards come available. The standards can be found in the appendices.

ISTE Standards	
<p>1. Creativity and Innovation Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.</p> <p>Students:</p>	<ul style="list-style-type: none"> a. apply existing knowledge to generate new ideas, products, or processes. b. create original works as a means of personal or group expression. c. use models and simulations to explore complex systems and issues. d. identify trends and forecast possibilities.
<p>2. Communication and Collaboration Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.</p> <p>Students:</p>	<ul style="list-style-type: none"> a. interact, collaborate, and publish with peers, experts or others employing a variety of digital environments and media. b. communicate information and ideas effectively to multiple audiences using a variety of media and formats. c. develop cultural understanding and global awareness by engaging with learners of other cultures. d. contribute to project teams to produce original works or solve problems.
<p>3. Research and Information Fluency Students apply digital tools to gather, evaluate, and use information.</p> <p>Students:</p>	<ul style="list-style-type: none"> a. plan strategies to guide inquiry. b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media. c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks. d. process data and report results.

<p>4. Critical Thinking, Problem-Solving & Decision-Making Students use critical thinking skills to plan and conduct research, manage projects, solve problems and make informed decisions using appropriate digital tools and resources.</p> <p>Students:</p>	<ul style="list-style-type: none"> a. identify and define authentic problems and significant questions for investigation. b. plan and manage activities to develop a solution or complete a project. c. collect and analyze data to identify solutions and/or make informed decisions. d. use multiple processes and diverse perspectives to explore alternative solutions.
<p>5. Digital Citizenship Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.</p> <p>Students:</p>	<ul style="list-style-type: none"> a. advocate and practice safe, legal, and responsible use of information and technology. b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity. c. demonstrate personal responsibility for lifelong learning. d. exhibit leadership for digital citizenship.
<p>6. Technology Operations and Concepts Students demonstrate a sound understanding of technology concepts, systems and operations.</p> <p>Students:</p>	<ul style="list-style-type: none"> a. understand and use technology systems. b. select and use applications effectively and productively. c. troubleshoot systems and applications. d. transfer current knowledge to learning of new technologies.

Performance Indicators	
<p>Grades K-2 Prior to completion of Grade 2 students will:</p>	<ol style="list-style-type: none"> 1. Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, and other technologies. (ISTE Standard 1) 2. Use a variety of media and technology resources for directed and independent learning activities. (1, 3) 3. Communicate about technology using developmentally appropriate and accurate terminology. (1) 4. Use developmentally appropriate multimedia resources (e.g., interactive books, educational software, elementary multimedia encyclopedias) to support learning. (1) 5. Work cooperatively and collaboratively with peers, family members, and others when using technology in the classroom. (2) 6. Demonstrate positive social and ethical behaviors when using technology. (2) 7. Practice responsible use of technology systems and software. (2) 8. Create developmentally appropriate multimedia products with support from teachers, family members, or student partners. (3) 9. Use technology resources (e.g., puzzles, logical thinking programs, writing tools, and digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas, and stories. (3, 4, 5, 6) 10. Gather information and communicate with others using telecommunications, with support from teachers, family members, or student partners. (4)
<p>Grades 3 – 5 Prior to completion of Grade 5 students will:</p>	<ol style="list-style-type: none"> 1. Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively. (1) 2. Discuss common uses of technology in daily life and the advantages and disadvantages those uses provide. (1, 2) 3. Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use. (2) 4. Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, and facilitate learning throughout the curriculum. (3) 5. Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom. (3, 4)

	<ol style="list-style-type: none"> 6. Use telecommunications efficiently and effectively to access remote information, communicate with others in support of direct and independent learning, and pursue personal interests. (4) 7. Use telecommunications and online resources (e.g., e-mail, online discussions, Web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products for audiences inside and outside the classroom. (4, 5) 8. Use technology resources (e.g., calculators, data collection probes, videos, educational software) for problem solving, self-directed learning, and extended learning activities. (5, 6) 9. Determine when technology is useful and select the appropriate tool(s) and technology resources to address a variety of tasks and problems. (5, 6) 10. Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources. (6)
<p>Grades 6 – 8 Prior to completion of Grade 8 students will:</p>	<ol style="list-style-type: none"> 1. Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use. (1) 2. Demonstrate knowledge of current changes in information technologies and the effect those changes have on the workplace and society. (2) 3. Exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse. (2) 4. Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research. (3, 5) 5. Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum. (3, 6) 6. Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom. (4, 5, 6) 7. Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or products for audiences inside and outside the classroom. (4, 5) 8. Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems. (5, 6) 9. Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving. (1, 6)

	<p>10. Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems. (2, 5, 6)</p>
<p>Grades 9 - 12 Prior to completion of Grade 12 students will:</p>	<ol style="list-style-type: none"> 1. Identify capabilities and limitations of contemporary and emerging technology resources and assess the potential of these systems and services to address personal, lifelong learning, and workplace needs. (2) 2. Make informed choices among technology systems, resources, and services. (1, 2) 3. Analyze advantages and disadvantages of widespread use and reliance on technology in the workplace and in society as a whole. (2) 4. Demonstrate and advocate for legal and ethical behaviors among peers, family, and community regarding the use of technology and information. (2) 5. Use technology tools and resources for managing and communicating personal/professional information (e.g., finances, schedules, addresses, purchases, correspondence). (3, 4) 6. Evaluate technology-based options, including distance and distributed education, for lifelong learning. (5) 7. Routinely and efficiently use online information resources to meet needs for collaboration, research, publication, communication, and productivity. (4, 5, 6) 8. Select and apply technology tools for research, information analysis, problem solving, and decision making in content learning. (4, 5) 9. Investigate and apply expert systems, intelligent agents, and simulations in real-world situations. (3, 5, 6) 10. Collaborate with peers, experts, and others to contribute to a content-related knowledge base by using technology to compile, synthesize, produce, and disseminate information, models, and other creative works. (4, 5, 6)

Area of Emphasis One Action Steps

2015 – 2016

- Create an instructional technology plan that aligns with the ISTE Standards.

2016 – 2017

- Reevaluate the plan.
- Work with feedback from staff and students to adjust plan (as needed).

2017 – 2018

- Reevaluate the plan.
- Work with feedback from staff and students to adjust plan (as needed).

2018 – 2019

- Reevaluate the plan.
- Work with feedback from staff and students to adjust plan (as needed).
- Work on creating the instructional tech plan for 2019-2023

Area of Emphasis Two

Professional Development

Goal

The district will devote resources to technologies required to enhance instruction and support student learning. Ongoing, continuous support and training will be provided to administrators, faculty, and staff.

Expectations for Teachers:

As part of the ongoing professional development the Solvay learning community expects teachers to:

- Use available technologies to support teaching and learning.
- Encourage and facilitate students' use of technology to further their learning.
- Seek out assistance and/or training when new technologies become available.

Expectation for Administrators:

The Solvay learning community expects administrators to:

- Use available technologies to support administrative services.
- Encourage and facilitate employee and student use of technology to enhance instruction and improve student outcomes.
- Seek out assistance and/or training when new technologies become available.

Expectation for Staff use of Technology

The Solvay learning community expects non-instructional staff to:

- Use available technologies to perform their jobs effectively.
- Seek out assistance and/or training when new technologies become available.

Professional Development Strategies

It is critical that a successful and sustained professional development (PD) program meet the needs of a diversity of staff experience and expertise in the use of technology. To determine the level of expertise an annual staff survey will be conducted to:

- determine a baseline of skills, experience and expertise.
- track the progress of staff on an annual basis.

We will provide PD opportunities focused on the needs of specific groups of teachers and/or individuals. These opportunities will include training on:

- the use of specific hardware.
- the use of peripheral devices.
- software applications for both instructional and management purposes.
- instructional methods to integrate technology into all curricular areas.

PD is most effective when there exists an immediate opportunity for practice and application of the newly acquired skill. Ongoing follow-up and support is critical to skill development, maintenance, and growth. Therefore, it is important to task each building technology committee as forum for the development of on-site staff development to the greatest extent possible. The district remains committed to a comprehensive system to meet the needs of a diversity of staff. A variety of training opportunities are available year round that will include, but not exclusive to:

- Workshops or conferences scheduled during the school day, weekends, or summer.
- Training sessions scheduled during faculty team meeting times.
- Teachers-Training-Teachers (T3) workshops to provide staff development opportunities outside of the school day.
- Onondaga Cortland Madison (OCM) BOCES sponsored workshops, conferences, or events.
- On-site/Hands-on support by the district technology team
- Peer coaching, including the mentor-intern program.
- Collaboration with educators from other schools, including on-site visits to model settings.
- Training opportunities for district faculty and staff on specific technology integration topics by curriculum area and/or grade level.
- Individual coaching and mentoring sessions offered during teacher preparation or on topics specific to individual needs.

In addition to our PD plan, staff should begin to incorporate technology integration into the instruction at Solvay Schools utilizing the SAMR Model.

SAMR stands for:

Substitution

Augmentation

Modification

Redefinition

Level	Definition	Examples	Functional Change
Substitution	Computer technology is used to perform the same task as was done before the use of computers.	Students print out worksheet, finish it, pass it in.	No functional change in teaching and learning. There may well be times when this the appropriate level of work as there is no real gain to be had from computer technology. One needs to decide computer use based on any other possible

			benefits. This area tends to be teacher centric where the instructor is guiding all aspects of a lesson.
Augmentation	Computer Technology offers an effective tool to perform common tasks.	Students take a quiz using a Google Form instead of using pencil and paper.	There is some functional benefit here in that paper is being saved, students and teacher can receive almost immediate feedback on student level of understanding of material. This level starts to move along the teacher / student centric continuum. The impact of immediate feedback is that students may begin to become more engaged in learning.
Modification	This is the first step over the line between enhancing the traditional goings-on of the classroom and transforming the classroom. Common classroom tasks are being accomplished through the use of computer technology.	Students are asked to write an essay around the theme "And This I Believe...". An audio recording of the essay is made along with an original musical soundtrack. The recording will be played in front of an authentic audience such as parents, or college admission counselors.	There is significant functional change in the classroom. While all students are learning similar writing skills, the reality of an authentic audience gives each student has a personal stake in the quality of the work. Computer technology is necessary for this classroom to function allowing peer and teacher feedback, easy rewriting, and audio recording. Questions about writing skills increasingly come from the students themselves.
Redefinition	Computer technology allows for new tasks that were previously inconceivable.	A classroom is asked to create a documentary video answering an essential question related to important concepts. Teams of students take on different subtopics	At this level, common classroom tasks and computer technology exist not as ends but as supports for student centered learning. Students learn content and skills in support of important concepts as they

		and collaborate to create one final product. Teams are expected to contact outside sources for information.	pursue the challenge of creating a professional quality video. Collaboration becomes necessary and technology allows such communications to occur. Questions and discussion are increasingly student generated.
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Source: <https://sites.google.com/a/msad60.org/technology-is-learning/samr-model>

Area of Emphasis Two Action Steps

2015 – 2016

- Create an instructional technology plan that includes many options for professional development opportunities.

2016 – 2017

- Reevaluate the plan.
- Work with feedback from staff and adjust plan (as needed).

2017 – 2018

- Reevaluate the plan.
- Work with feedback from staff and adjust plan (as needed).

2018 – 2019

- Reevaluate the plan.
- Work with feedback from staff and adjust plan (as needed).
- Work on creating the instructional tech plan for 2019-2023

Area of Emphasis Three

Technology Infrastructure to Support Learning

Goal

The goal of Solvay School district is to have one device per student/staff by 2017-18 school year. In order to make this goal obtainable, there is going to need to be upgrades made to the district's infrastructure.

Expectations

Currently, the district maintains an inventory of approximately 2000 computing devices (desktops, laptops, Chromebooks, iPads, etc). A majority of the desktops and laptops are in classrooms and office. We are using a one-to-many shared model (carts) for the Chromebooks and iPads that are available for staff to sign out for their classes.

The district's network is due for an upgrade. We are currently running on Avaya/Nortel networking infrastructure at 1 Gigabit (GB) connections between the buildings and internally to the desktops. Over the summer of 2015 we purchased 14 brand new 10 GB networking switches. This is approximately half of our inventory, so we will require the other 15 to be upgraded as well to bring the entire district up to 10 GB interconnectivity.

Furthermore, the district is in the process of migrating from one wireless solution to another. Currently, we have upgraded only the middle school's wireless. We have an older solution at the high school and elementary school. We would like to bring the elementary and high schools up to the same configuration that is running at the middle school.

The district runs a virtualized server infrastructure with 40 virtualized servers with 24 terabytes (TB) of local storage. Solvay is also a Google Apps for Education school district which allows each student/staff member to store up to 25 GB of data in "Cloud Storage" for access at any time with an Internet connection. This is the direction Solvay is heading: leveraging the power of Google Apps to be able to deliver a solid learning platform to any student or staff member anywhere at any time.

Area of Emphasis Three Action Steps

2015– 2016

- 1:1 Chromebook pilot at 6th grade
 - Every 6th grade classroom has a cart of 25 Dell Chromebooks. The devices currently (2015) do not go home with the students, they are only used within school.

2016 – 2017

- Wireless Upgrade
 - SES
 - SHS
- Add (15) 10 GB switches to increase network capacity (10 GB internal bandwidth)
- Add more grades to the one Chromebook per student deployment
- Monitor Internet bandwidth (as devices are added, the need for more bandwidth increases)
- Develop a replacement schedule
- Reevaluate the plan.
- Work with feedback from staff and adjust plan (as needed).

2017 – 2018

- Monitor Internet bandwidth
- Reevaluate the plan.
- Work with feedback from staff and adjust plan (as needed).

2018 – 2019

- Monitor Internet bandwidth
- Reevaluate the plan.
- Work with feedback from staff and adjust plan (as needed).
- Work on creating the instructional tech plan for 2019-2023

Area of Emphasis Four

IT Support

Goal

Make sure the district has the support staff in place to support the increased number of devices. Furthermore, the IT support staff will be trained on all technologies being used throughout the district to quickly return the technology back to service to minimize computer systems downtime

Expectations

- Students: Provide suggestions and ideas about improving the IT support and installation process. Use equipment responsibly and in a way that minimizes the need for repairs and downtime.
- Staff: Provide suggestions and ideas about improving the IT support and installation process. Educate students in the proper use of technology so as to minimize downtime of technology assets.

Area of Emphasis Four Action Items

2015 – 2016

- Survey staff and students to gauge IT support satisfaction.
- Reevaluate the plan

2016 – 2017

- Send out annual IT support survey to staff/students.
- Make modifications to IT support using the data from survey.
- Reevaluate the plan.
- Work with feedback from staff and adjust plan (as needed).

2017 – 2018

- Send out annual IT support survey to staff/students.
- Make modifications to IT support using the data from survey.
- Reevaluate the plan.
- Work with feedback from staff and adjust plan (as needed).

2018 – 2019

- Send out annual IT support survey to staff/students.
- Make modifications to IT support using the data from survey.
- Reevaluate the plan.
- Work with feedback from staff and adjust plan (as needed).
- Work on creating the instructional tech plan for 2019-2023

Appendices

- a) NYSED Approved Instructional Technology Plan
- b) ISTE Standard for Students
- c) ISTE Standard for Teachers
- d) ISTE Standard for Administrators