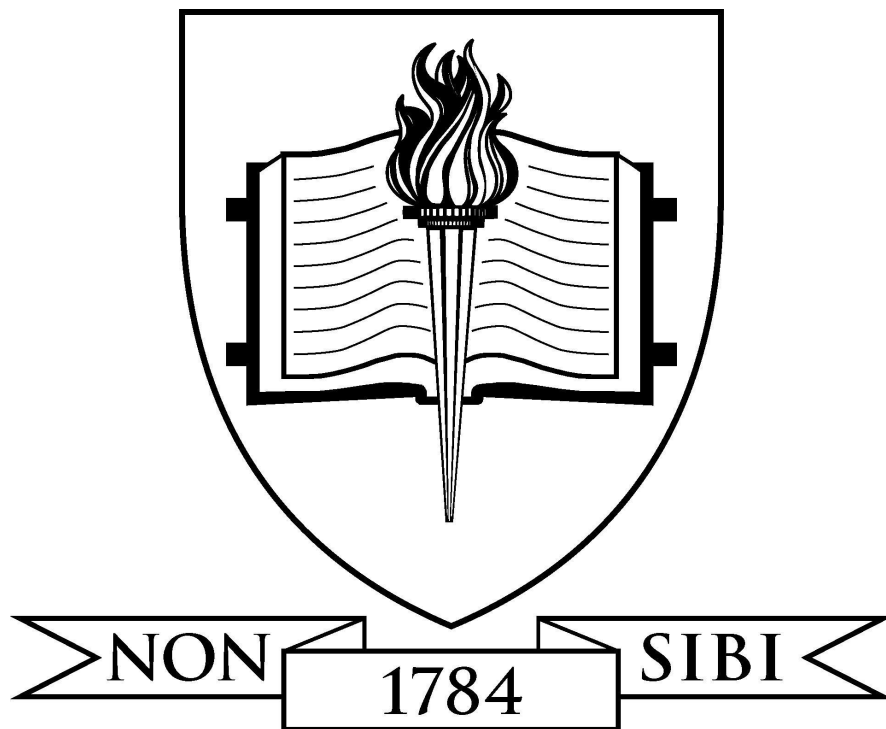# Scarsdale Technology Plan
2022-2025

Scarsdale Public Schools
Scarsdale, NY

The Scarsdale Mission Statement

The Scarsdale Public Schools seek to sponsor each student's full development, enabling our youth to be effective and independent contributors in a democratic society and an interdependent world. To this end, we endeavor to help them to think and express themselves clearly, critically, and creatively; to understand themselves and others within the broad fabric of human experience and the natural universe; to appreciate their rights and responsibilities as citizens; and to become people of integrity, maturity and generous spirit. A measure of our success is the degree to which they fulfill their potential for the common good, *non sibi* -- not for themselves alone. Valuing our individuality, we unite to keep the flame of learning.

The Scarsdale Technology Vision Statement

The Scarsdale School District has a longstanding, continuous commitment to providing our students with an outstanding education. To that end, we seek to achieve and maintain best practices in using technology to support the educational experiences of all students. **The use of technology should be seamlessly integrated into the curriculum, teaching and learning.**

We believe that all members of the school community should be able to:

- Use appropriate technology as a tool for teaching, learning, and assessment
- Have access to appropriate technology throughout the District buildings and adjacent areas
- Use technology to empower learners by giving them tools for creating, communicating, and collaborating
- Use technology to allow all users to curate information and solve problems
- Recognize the ethical and legal responsibilities and opportunities of learning and working in an increasingly interconnected community

In order to realize this vision, we must continually respond to changes in the technology landscape by maintaining a robust infrastructure, providing technical and financial support for the use of technology in our schools, investing in professional development for all staff, and providing a wide variety of opportunities for all students to use technology to enhance their learning.

Introduction

The Scarsdale Public Schools have a long history of using technology to enhance student learning. The use of technology is an important District initiative that has been supported by the Scarsdale staff and administration, Board of Education, and the wider Scarsdale community. A key component of the District's work in technology involves preparing and updating plans for using technology to support teaching, learning, and assessment.This document reflects our best thinking on this ever evolving domain.

As part of the Commissioner's Regulations, all New York State public school districts are required to develop and maintain instructional technology plans and submit new plans every three years. The plans are designed to develop a strategic vision and goals to support student achievement and engagement through the seamless integration of technology into teaching and learning.

This Technology Plan focuses on several areas, including Instructional Technology, Information Technology, and Professional Learning. This comprehensive plan makes many recommendations about future directions for technology in the District that will enable Scarsdale to provide all members of its learning community with access to appropriate technological resources, enhanced instructional programs, and opportunities for professional growth.

This plan also addresses the recently developed New York State standards, as well as detailing four technology goals that have been identified by our K-12 Technology Committee. We would like to thank the members of this committee for their work in developing this plan, and we would also like to thank the members of the administration, teaching staff, the Board of Education, and the community for their continued support of our District technology program.

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The Scarsdale Technology Plan: Setting the Context

National Technology Planning Efforts

Several national technology planning initiatives, sponsored by major educational technology leadership organizations, have provided guidance for the District Technology Plan.

The International Society for Technology and Education (ISTE) is the leading professional organization for computer teachers and educational technology leaders. ISTE has published technology standards that describe technology competencies for students, teachers, and administrators. These standards specifically address *"What students should know and be able to do to learn effectively and live productively in an increasingly digital world."* The latest version of the standards shift the focus from technology skills to the changing roles of students as they increasingly use technology in their daily lives. These roles include:

- **Empowered Learner:** Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals.
- **Digital Citizen:** Students recognize the rights, responsibilities, and opportunities of living, learning and working in an interconnected digital world, and act in ways that are safe, legal, ethical, and self-aware.
- **Knowledge Curator:** Students make meaning for themselves and others by critically curating resources through the use of digital tools.
- **Innovative Designer:** Students use a variety of technologies within a design process to solve problems by creating new, useful, and imaginative solutions.
- **Computational Thinker:** Students identify authentic problems, work with data, and employ algorithmic thinking to propose and automate solutions.
- **Creator and Communicator:** Students communicate clearly and express themselves creatively for a variety of purposes using the tools, styles, formats, and digital media appropriate to their goals.
- **Global Collaborator:** Students use digital tools to broaden their perspectives, increase empathy and understanding, and work effectively in teams.

These standards are reflected in the instructional technology goals presented in this plan.

In addition, the Consortium for School Networking (COSN) has identified a *Framework of Essential Skills* required for all technology leaders. This Framework provides a useful way to identify the important components of any technology program.

The ten areas identified in the Framework are:

- Leadership & Vision
- Strategic Planning
- Ethics & Policies
- Instructional Focus & Professional Development
- Team Building & Staffing
- Information Technology Management
- Communication Systems Management
- Business Management
- Data Management
- Data Privacy and Security

The overall Framework guides our thinking about the planning and management of technology in our schools, and our Technology Plan focuses on several of these categories.

Technology Planning in New York State

The New York State Technology Plan outlines the components required for state approval of a district technology plan, which is provided to Districts in the form of a detailed survey. This requirement for all schools was launched in 2018. The survey information includes questions about:

- Strategic technology planning
- Goals and action plans
- Technology plan alignment with NYSED initiatives
- Administrative Management
- Sharing innovative educational technology programs

The current NYSED Technology Plan was approved by our local BOCES Regional Information Center and the New York State Education Department in 2018. The new NYSED Technology Survey information was submitted to BOCES in April of 2022 and has been incorporated into this document.

In 2020, New York educators and administrators created a new document that specifies a list of standards that guide the use of technology in schools. The Board of Regents adopted the document, entitled *The New York State K12 Computer Science and Digital Fluency Learning Standards,* in December 2020. This document outlines a four year implementation plan for introducing and implementing these standards.

The *New York State K12 Computer Science and Digital Fluency Learning Standards* include the following five core components:

- Impacts of Computing
- Computational Thinking
- Networks and System Design
- Cybersecurity
- Digital Literacy

These standards have strong ties to the ISTE standards that Scarsdale has been using for many years, so the implementation of these new standards should be a seamless process for our District.

The Technology Planning Process

The instructional technology planning process aligns with the district's strategic planning process. In the summer of 2021, the Head Computer Teachers and the Director of Instructional Technology and Innovation started working on a new Technology Plan in anticipation of the expiration of the District's existing Technology Plan at the end of the 2022 school year. The Head Computer Teachers generated a list of questions that would be discussed prior to the creation of the new Technology Plan. These included:

- How do we enhance our instruction of digital citizenship now that students are spending more time with their own devices?
- How can we better communicate the purpose of our program to parents?
- How can we help administrators demonstrate the importance of being a technology leader? How do we engage administrators in our technology planning work?
- What are the areas of emerging technology that we need to consider in the new plan?
- How can computer teachers, librarians, and coordinators collaborate on ideas related to coaching and teacher support?
- How do we provide "required" PD outside the STI? How do we deal with the increased sophistication of teachers who are now using technology more than ever?

After this summer planning period, the Director of Instructional Technology and Innovation created a public website to help stakeholders understand the planning process and timeline. The website is located at: https://sites.google.com/scarsdaleschools.org/scarsdaletechplan/home

The timeline for developing the plan, as well as gathering stakeholder feedback, was established, and the Scarsdale K-12 Technology Committee used significant portions of their planning meetings to work on sections of the technology plan.

- July 7th: Head Computer Teacher Summer Meeting/Planning to plan
- October 15th: K-12 Technology Committee Kickoff meeting
- November 18th: K-12 Technology Committee meeting
- December: Plan stakeholder feedback sessions
- January: K-12 Technology Committee meeting
- February: K-12 Technology Committee meeting
- March: Parent/Student/Focus Groups/K-12 Technology Committee meeting
- April 15th: Technology Plan submitted to BOCES for review and comment
- April 25th: Board Technology Plan Presentation & Parent Feedback Survey
- July 1st: Final Technology Plan submitted to the New York State Education Department

As noted above, the process for gathering feedback included teacher surveys and focus groups, parent focus groups and a High School student focus group. This plan was presented during a Board Education report in April 2022. The community will be invited to submit questions and comments after the presentation. This District Technology Plan also contains the essential information that is contained in this document that is being submitted to NYSED.

Teacher input was an integral part of the planning process. Teachers had opportunities to provide input. The computer teachers and librarians also met throughout the year to discuss key elements of the plan.

At the High School, a technology committee was convened to discuss ways to offer technology opportunities to staff and students. The group also focused on student access to technology resources, including discussions and surveys related to the deployment of devices in the High School and balancing the use of technology with personal wellness.

Instructional Technology

The instructional technology program is based on the constructivist philosophy of education, fostering learning experiences and providing software tools that allow students to construct their own knowledge. The instructional technology program is also a key component of the current District Strategic Plan. Specifically, the program supports the following strategic planning goals:

- Global Citizenship Education: Competencies & Ethical Responsibilities
- Libraries, Learning Spaces & Curated Resources
- Next Generation Standards Development & Implementation
- SET 2.0: STEAM & Design Thinking
- Technology to Transform Teaching, Learning & Assessment

Student Instructional Technology Expectations

Student instructional technology expectations are at the center of our instructional technology plan. At the elementary and middle school level, expectations are based on categories and are correlated to the latest version of the International Society for Technology Education (ISTE) National Educational Technology Standards. At the high school level, departments support technology expectations, and these are also based on the latest ISTE standards.

In addition to academic expectations for technology use, all students are expected to follow the guidelines of the current Technology Responsible Use Policy that was adopted by the Board in 2018. This policy addresses issues related to social and ethical uses of technology. Specifically, all students are expected to use technology in a socially and legally responsible manner. This policy also supports a relatively new District Social Media Policy, which governs the use of social media by students and staff.

Technology expectations at the elementary level are met through direct instruction provided by the elementary computer teachers, classroom teachers, and librarians. At the Middle School and High School, expectations have been created by each department to ensure that students have technology-related experiences within many areas of the curriculum, which take place in classrooms, labs, and library media centers. Computer teachers at the Middle School and High School also provide direct instruction to students.

Technology in the Elementary Schools

The elementary technology program provides an important foundation for Scarsdale students. The program is comprehensive and interdisciplinary, addressing major themes within the curriculum.

Elementary school computer teachers support curriculum development and integration, technology instruction, and professional development in their respective schools. The computer teachers and classroom teachers are assisted by five computer aides (one assigned per building) who support the instructional program. The District Technology Coordinator, the elementary head computer teacher, and the other elementary computer teachers, coordinate the elementary instructional technology integration, instruction and teacher professional development to provide equitable access to technology at all five schools.

Elementary students engage in curriculum-related technology activities designed collaboratively by the computer teacher, classroom teacher, library media specialist and/or specials teachers. During the primary grades, students become engaged in a number of developmentally appropriate projects beginning in kindergarten. Technology is used for problem-solving activities, creating simple publishing projects, painting and drawing, and preparing slideshow presentations. As students progress through the grades, they complete projects and participate in technology integrated activities that are more complex. Fifth grade students participate in an inquiry research experience, the Capstone Project, that brings together many of the strategies and skills they have learned throughout their elementary years.

Through the incorporation of mobile devices (such as 1:1 iPads in grades K-2 and 1:1 Chromebooks in grades 3-5) and online tools (including the Google Workspace for Education (formerly GSuite), WeVideo and Seesaw), students in grades K-5 develop technology skills and dispositions through collaborative inquiries. The goal is for students to leave elementary school with the understanding that they can find, evaluate, and present information across disciplines, and have the confidence to use and create with technology independently and safely.

Elementary students learn how to create and present multimedia projects and how to use the Internet as a resource. Students have access to a variety of subscription-based online reference materials through their school library websites, as well as software and online services to support these goals.

The following technology expectations, based on the ISTE standards, illustrate the goals of the elementary technology program, as well as the instructional tools that support the goals.

Elementary Student Technology Expectations

1. **Empowered Learner**
   Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals.
   - Applications such as Google Workspace for Education, Wixie, Blogs (Campus Press, Seesaw), iMovie/WeVideo, Garageband, Keynote
   - Google Workspace for Education introduced in Grade 3 along with the 1:1 Chromebooks program
   - Students will:
     - Create and present multimedia projects
     - Create digital art and media
     - Publish text-based documents using a variety of tools, including Google Workspace for Education

2. **Digital Citizen**
   Students recognize the rights, responsibilities and opportunities of living, learning, and working in an interconnected digital world, and they act in ways that are safe, legal, ethical, and self-aware.
   - Students are active participants using applications such as Google Workspace for Education, Blogs (Campus Press, Seesaw), and other online resources.
   - Students in grades K-5 will engage in specific lessons about cyberbullying and protecting their digital footprint, taught by computer teachers and librarians.
   - In addition, students will:
     - Understand and follow the District Responsible Use Policy
     - Advocate and practice safe, legal, and responsible use of technology
     - Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
     - Demonstrate personal responsibility for lifelong learning
     - Exhibit leadership for digital citizenship

3. **Knowledge Curator**
   Students make meaning for themselves and others by critically curating resources through the use of digital tools.
   - Students will use applications such as Book Creator, Google Drive and Google Sites, Blogs, Seesaw, and other online resources.
   - Students will:
     - Store, share, access, and manipulate files in Google Drive
     - Organize and reflect on content in Google Sites and Blogs (Campus Press, Seesaw)
     - Use apps such as Book Creator and Seesaw in primary grades to explain learning in their own words
     - Understand the purposes of using different media

4. **Innovative Designer**

Students use a variety of technologies within a design process to solve problems by creating new, useful, and/or creative solutions.
- They will apply technology and non-technology resources to support a Design Thinking process
- Students will:
    - Use elements of the Design Thinking process to identify and/or solve problems
    - Utilize physical tools in conjunction with digital tools to plan strategies for managing and designing their projects or products
    - Develop, test, and refine prototypes of innovative designs, concepts, products or solutions

5. **Computational Thinker**

Students identify authentic problems, work with data and employ algorithmic thinking to propose and automate solutions.
- Students will use coding applications, such as Tynker, Kodable, Scratch, Blockly, Code.org, and Makecode. The following programs will be used by students at specific grade levels:
    - Grade K-2: Kodable
    - Grades: 2-5 Tynker
- Students will:
    - Understand coding is an iterative process that requires testing and debugging
    - Identify bugs in code and search for correct solutions
    - Explain what a programmer does
    - Move a "robot" in various directions using basic programming language
    - Explain sequential programming processes

6. **Creator and Communicator**

Students communicate clearly and express themselves creatively using a variety of digital tools. They explore different presentation styles and communication tools to engage and educate their audience.
- Applications used include WeVideo, Google Workspace for Education, Padlet, Blogs, Keynote, or iMovie
- Students will participate in multiple age-appropriate interdisciplinary projects in grades K-5, culminating with the Scarsdale Capstone project in 5th grade
- Students will:
    - Understand principles of typography, such as style, scale, alignment, and typeface
    - Understand that effective visual presentations support and complement the information presented verbally

- ○ Be able to modify the work, or extend the thinking, of others to generate a novel presentation
- ○ Be able to understand how visuals and audio work together to enhance communication
- ○ Share stories and research with a public audience using appropriate publishing and digital media tools

7. **Global Collaborator**
   Students use digital tools to broaden their perspectives, increase empathy, and understand and work effectively in teams.
   - Kindergarten through 5th grade, integrated across all content areas
   - Applications such as Google Workspace for Education and Blogs
   - Students will:
     - ○ Use collaborative tools to communicate and work effectively with classmates and those outside their classroom. Students will also have an opportunity to publish to an authentic audience
     - ○ Use teacher social media accounts and video chats to connect with educators and field experts around the world; showing students power, potential, and purpose around global collaboration
     - ○ Use digital communication tools to gain access to diverse global perspectives

The elementary technology team will continue to foster communication and collaboration through the Google Workspace for Education accounts that are available for all students in grades K-5. The major use of these Google tools will be to encourage communication and collaboration between students and teachers, students and their peers, as well as teachers and their colleagues.

During the 2022-2023 school year, technology professional development sessions will build upon lessons learned and innovations created during the Covid 19 pandemic and distance learning experiences. Those experiences focused on Google Workspace for Education, Seesaw, and digital learning, allowing teachers to connect with colleagues and experts throughout the District and around the world. These connections can help teachers to continue to customize their professional growth and acquire new knowledge.

The technology teachers will continue providing technology training sessions and after-school technology professional development. Teachers will continue to share their expertise via ST@C (Scarsdale Teachers Collaborative) workshops and STI (Scarsdale Teachers Institute) classes, fostering the creation of professional learning communities.

As we move forward and strive to align the existing elementary curriculum with the goals of our Strategic Plan, we will need to bolster the capacity for teachers to implement technology resources and skills that not only motivate students to perform their best, but also grow learners

who can succeed in tomorrow's classrooms and participate as contributing citizens in the global community.

The Elementary Libraries

The Elementary Librarians support the K-5 instructional program in which the acquisition of information literacy skills is integrated into the curriculum. The program supports students' development of Information fluency, the ability to locate, access, evaluate, analyze, and synthesize information from electronic, print, and other media resources. Technology facilitates the research process by providing students with the tools to quickly and efficiently locate and access information.

The ease of accessing information using technology also necessitates a discussion about the prevalence of misinformation. Librarians teach students how to evaluate sources and identify misleading or fictional news stories.

The Library Media Specialists support the seamless integration of information technology into development of lifelong learning. The program is aligned with the information fluency standards for student learning developed by the American Association of School Libraries (AASL) and the AASL Standards Framework for Learning. Additionally, technology provides resources for students to access literature in different formats.

The Elementary Library program is designed to help students develop into efficient and effective users of print and digital information and online tools, including the digital catalog, databases and ebooks. Students have access to personal and school-owned devices, as well as access to online resources that are not curated by their teacher or school librarian; therefore, it is imperative that students learn to use the resources and become critical purveyors of information. With the integration of one-to-one in all the elementary grades, the necessity of teaching digital and media literacy is crucial to the success of our students.

Technology in the Middle School

The Middle School faculty continues to articulate a vision for the computing experience offered to Scarsdale Middle School students through identifying a series of computing experiences and desired learning outcomes for students throughout the school.

These Assured Digital Experiences and Learning Outcomes for Student Computing at the Middle School continue to be informed by conversations with computing colleagues at the elementary and high school levels. The Middle School computer teachers have worked with their elementary level colleagues to identify goals and articulate sequences that would be introduced in elementary school and develop throughout a student's years in Scarsdale. These district conversations have also provided the basis for the Middle School's increasing emphasis on Computational Thinking and Creative Computing.

Further, the evolution of computing goals for Scarsdale Middle School students has also been informed by relevant thinking by the Computer Science Teachers Association - Association of Computing Machinery and the International Society for Technology in Education (ISTE).

Students at Scarsdale Middle are provided with opportunities to achieve curriculum and computing goals through thoughtful and meaningful use of computers integrated broadly throughout the curriculum. Students also meet these goals through experiences taking place within defined programs (for example, the sixth grade computer quarterly and Related Arts Technology classes in grades 6-8).

Students in grades 6-8 are currently using iPads with integrated keyboards as their 1:1 device. In addition to this 1:1 device, students will continue to be provided with technology experiences using a variety of desktop and mobile platforms to support various curriculum projects. For example, the Music department has a digital music studio complete with a full class of iMacs and musical keyboards for our Exploring Music program.

The Middle School is also in the fourth year of its adoption of a Learning Management System called *Schoology*. This online platform provides students with tools for communicating, understanding coursework, and submitting assignments. Through professional learning opportunities teachers are learning to design activities which take advantage of Schoology's powerful features.

Ongoing review of these goals and programs, as well as support for consistent goal implementation and growth, including professional development for teachers, is being provided by the Middle School's two computer teachers, members of the Computer Committee, and administration department chairs.

Middle School Digital Experiences
Scarsdale Middle School's Technology Learning Outcomes for Students are divided into three types of digital experiences:

- **Learning Outcomes** related directly to students developing as *designers* and *creators (*not just *consumers)* of technology. Each of these outcomes relates to a student's mastery of a creative domain. Together, they represent the Middle School's primary goals for student computing.
- **Digital Proficiencies** related to using school hardware, networks, and applications with confidence.
- **Additional Digital Experiences** provided by specific departments.

Middle School Student Technology Expectations

The Middle School faculty is committed to providing students with, and preparing them for, a broad range of computing experiences and approaches. In addition, Scarsdale Middle School students are provided with instruction in essential digital literacies like digital citizenship and research skills, building on their experiences in the elementary schools.

Each of the following primary learning outcomes represents a commitment to creative computing, to the development of a student's capacity to learn how to apply a set of tools to the construction of meaning, and to finding solutions to authentic problems. For each Learning Outcome, we note where student experience is assured, as well as relevant curriculum examples.

1. **Digital Citizenship** *Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. (ISTE)*
   - Applications: seen across all applications
   - Grades 6-8, across the curriculum, instruction provided by House Counselors and health teachers
   - Students will:
     - Advocate and practice safe, legal, and responsible use of information and technology
     - Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
     - Demonstrate personal responsibility for lifelong learning
     - Exhibit leadership in digital citizenship

2. **Research Skills** *Students will learn how to use technology to locate, evaluate, and collect information. (Information Literacy Competency Standards for Higher Education, American Library Association (ALA), 2000)*
   - Applications: seen across all applications
   - Grades 6-8, across the curriculum, instruction provided by library media specialist
   - An information literate Middle School student will be able to:

- Determine the extent of information needed to complete a research project
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one's knowledge base
- Use information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally

3. **Written Communication** *Students will use technology to write, edit, and design printed documents.*
   - Applications: Google Docs, Pages
   - Grades 6-8, across the curriculum
   - Students will write, edit and design written documents for the purpose of clearly communicating concepts to teachers and classmates. Students will gain experience with a variety of software applications, including Apple's Pages and Google Docs. Students have a variety of experiences in this domain throughout their Middle School careers. In many classes, students create written documents to submit homework assignments, as well as writing essays and paragraphs. They also design and publish posters, newsletters, brochures, and other written documents. In English class, students develop their revision and peer editing skills and also practice literary analysis skills through their written work. In Science, students collaborate on lab reports. Essay writing and document-based questions (DBQ's) are a focus in Social Studies. World Language students embed grammatical structures into written dialogue and short stories.

4. **Presentation Software** *Students will learn to create and use presentations and multimedia software.*
   - Applications: Google Slides, Keynote, iMovie, a variety of iPad apps
   - Grades 6-8, across the curriculum
   - Students will create multimedia presentations for the purpose of communicating research and other concepts to teachers and classmates. Students will gain experience with a variety of software applications including Keynote, as well as cloud-based solutions like Google Slides. All platforms require students to plan, organize, make design and editing choices, and learn how to use images, video, and audio elements effectively. Multimedia projects have allowed students in all subject areas to present in class and other venues.

5. **Spreadsheets, Charts and Graphs, Databases** *Use and create spreadsheets and databases, charts, and graphs.*
   - Applications: Google Sheets
   - Grade 6, computer quarterly, grade 8 technology
   - Students will use spreadsheet applications to create tables for presenting information clearly. Increasingly, students will use spreadsheets to analyze data

including sorting, searching and filtering, creating charts and graphs, and applying functions and calculations. Students will be introduced to Google Sheets, possibly Apple's Numbers application and Microsoft Excel, in Science and Social Studies. Other dedicated tools for data analysis and graphing may be used.

6. **Web Design** *Design Web Pages*
   ● Applications: Google Sites
   ● Grade 6-7, Social Studies
   ● Students will learn how to design a Web site by modifying a template and, with more experience, creating an original site. They will learn how to create and format pages whose elements include text, images and hyperlinks. Students using Google Sites will learn how to embed content from Google Drive and other Google resources. While students' primary web design experience has been through portfolio work in seventh grade Social Studies, these approaches are increasingly being applied on a team level and in other departments.

7. **Image Editing** *Create/edit an image*
   ● Applications: Preview, Photoshop, Procreate, a variety of IOS apps
   ● Grade 6-8, Arts, Technology, and Design
   ● Students will learn how to create original content and edit existing content using a variety of utilities and software applications. Students will learn how to save documents into different file types and sizes. They will learn about rotating and cropping images, and they will learn about making adjustments to color, brightness and contrast settings. By the end of eighth grade, students will use a number of Photoshop's tools and filters for projects in art and technology classes, as well as for projects in other subject areas.

8. **Designing Objects** *Design objects, illustrations, diagrams*
   ● Applications: Illustrator, Inspiration, Google SketchUp, Tinkercad
   ● Grade 6-8, across the curriculum, Arts, Technology, and Design
   ● Students are given opportunities to use a variety of tools to design two and three dimensional diagrams and objects. In 7th grade Technology, students will have the opportunity to build or fabricate objects of their own design.

7. Digital Video *Create an original video project.*

   ● Applications: iMovie, Clips
   ● Grades 6-8, across the curriculum
   ● Students will learn and apply the skills of video editing to original documentary or narrative school projects. Working independently and with others, students will storyboard, shoot, edit, and prepare a final video project in a variety of academic areas. The Middle School's primary platform for digital video is Apple's iMovie, which students use as a part of a creative suite that includes Garageband and Photos. While digital video projects of all kinds can be found in any subject area,

teachers often encourage students to use video to present information, including research, often with a specific point of view, about a topic of study or interest. Digital video is also used to document a process or event.

8. **Audio Technology: Sound and Music**

A. **Music Composition** *Compose and arrange music*
   - Applications: Sibelius, Noteflight, Garageband, Synthesia
   - 6th grade Exploring Music
   - Students will learn how to score an original piece of music using notation software. They will learn to use audio editing software to compose, arrange and edit music. Students will learn how to record original music as well as assemble and edit pre-recorded loops and sound samples. They will learn the options for exporting finished work to use as stand-alone work or as a part of a multimedia project.

B. **Podcast Creation** *Create a podcast or audio story*
   - Applications: Garageband, iMovie, a variety of websites
   - Varies across curriculum
   - Students will use audio editing software to create original sound recordings. Students will learn how to record original sound as well as create a finished piece using both original and pre-recorded sound samples in a multi-track editing environment. They will learn the options for exporting finished work to use as stand-alone work or as part of a multimedia project.

9. **Mapping** *Use location/mapping technology.*

   - Applications: Google Earth/Google Maps, Geocaching
   - Varies across curriculum
   - Students will learn how to apply digital mapping resources to geography-related questions across the curriculum, including how to locate and examine places and distances. They will also learn how online mapping technology allows users to understand essential questions through a geospatial lens. Students will learn how to create and share custom maps that can be used with other software applications.

10. **Coding** *Use coding, including programmable circuit boards*

   - Applications: Scratch, Tynker, Ardublocks
   - Grade 6, Computer Quarterly and Technology Class
   - Students will learn the fundamentals of programming and design using the visual coding platforms such as Scratch and Arduino. Students learn core computational and mathematical concepts that are consistent with mainstream programming languages. This work develops problem-solving, creativity and reasoning skills. Most importantly, students gain important experience and skill with a critical project design process: thinking creatively, communicating clearly,

analyzing systematically, collaborating effectively, designing iteratively, and learning continuously. Quarterly students create games, simulations, animations, music, art and interactive stories.

The Middle School Library

In the Scarsdale Middle School Library, technology plays a central role in the instructional program. Our goal is to create patrons who are flexible and skilled, persistent and confident in their use of library-relevant and library-related technologies.

A dedicated library classroom provides a centralized space for instruction, presentations and guided explorations. Students are taught advanced techniques for searching the online catalog, our databases, and the internet. Students are also taught digital literacy skills as determined by American Association of School Librarians standards and detailed in the District's K-12 library curriculum. Students utilize 1:1 iPads and use their devices for all aspects of research.

The SMS Library catalog includes eBook editions of several reference books, making it possible for an entire class to have simultaneous access to these materials. The catalog also includes Interactive digital books, with live internet links, videos and other features. Audiobooks are available to students via OverDrive/SORA as well as in the form of Playaways.

The library provides access to 36 subscription databases. Students also have access to additional vetted digital content through the Class Projects tab on the library's website. The library also provides access to thousands of eBooks and audiobooks via OverDrive/SORA. All of these digital tools and resources are available to students 24/7.

The SMS Library community - teachers and students, librarians and families - are a community of learners and thinkers. As a community, we have access to a wealth of technology resources. We will apply this disposition to increasingly more complex technology applications, including virtual field trips, virtual reality, and augmented reality.

Technology in the High School

Building on the foundations developed in elementary and Middle School, students at the High School access technology to empower their learning independently, develop skills and achieve learning outcomes within specific disciplines. The instructional technology program provides and supports a variety of digital tools and specialized applications that allow students to set and review learning goals, express themselves creatively, communicate and collaborate with others, and personalize and demonstrate their learning.

During the 2021-2022 school year the High School began implementing a 1:1 Chromebook program. Sixty-three percent of ninth-grade students opted to participate in the program. The rest of the students were expected to bring their own devices and connect to the BYOD WiFi provided. 19% of the tenth graders, 9% of eleventh graders, and 9% of twelfth graders have also participated in the program during the 2021-22 school year. The projection is that this trend will continue and devices will continue to be available for all students.

Students and staff have access to additional devices in classrooms and common areas to meet their instructional needs. For example, the Design Lab has high-powered laptops to run 3D modeling programs, such as Fusion 360, and the Art labs have powerful desktop computers that allow students to render 3D animations. There are Windows-based computers and Apple devices in the building to best meet the teachers' curriculum and instruction goals. Two computer teachers partner with faculty in collaborative instruction. They provide technology professional development, support students and staff, and teach computer science courses. Computer aides also provide technical support to the teachers and students.

Teachers supplement classroom instruction with online resources and learning management tools, such as Schoolwires, Google Classroom, and TurnItIn. These learning management tools also allow teachers to digitize assessments for more immediate student feedback, as well as allow for faster grading and returning of materials to students. These tools also provide an organized, coherent, and accessible model for student and teacher exchange. Teachers have also incorporated a number of creativity software programs, such as WeVideo, Adobe Cloud Express, and Flipgrid. These tools were incorporated during the pandemic and have continued to be part of the instructional program.

High School Departmental Technology Expectations

Technology is integrated in all High School departments with the goal of preparing students to learn effectively and live productively in our digital world as responsible digital citizens. All students use technology tools to curate their knowledge and creatively communicate their understanding. Each High School Department has developed a set of technology expectations and goals that provide a framework for consistency of instruction. It should be noted that students and teachers often have additional opportunities to use technology beyond the competencies described in this list of expectations.

Art

Students in art courses use technology to experiment with materials, design and concepts. Starting in the foundation course and continuing through a wide range of electives, students use digital tools and resources in their work.
- All students take the Studio Art Foundation course completing at least one project incorporating technology, such as a graphics poster project.
- In the AT 2D course, students use digital tools, such as Excel and Adobe applications in their Systems project, to translate data into an artistic visual model.
- Computer Animation students create narratives using Cinema 4D to design 3D characters, environments, motion graphics; access to electronic resources/tutorials allows them to further personalize learning and advance their skills. Photoshop, together with stylus and tablet tools, allow students to create more sophisticated objects and environments.
- In Graphic Arts, students explore elements and principles of design, creating illustrations, and typography using the Adobe suite.
- Architecture students use digital modeling tools to explore the ordering principles of architecture, creating designs that they produce as 3D objects through reductive manufacturing techniques.
- Digital Photography students have access to high-resolution SLR cameras. Photoshop provides a "digital darkroom," allowing them to enlarge, enhance and transform their photographs into personalized creative visual statements.
- Digital Video students use professional non-linear editing tools in the Adobe Suite to learn basic video and audio editing techniques, and use those tools to create dynamic personal narratives.
- Integration of iPads into a number of courses.
- Developing a creative studio with laser cutter, Cricut, and 3D printer.

In addition, art teachers collaborate in interdisciplinary projects such as designing (Desmos/Adobe Illustrator), manufacturing (laser etching) and building known cross-sections with Calculus students, or creating videos for Senior Transition Day with the Counseling Department.

Recognizing rights and responsibilities as artists is critical. When not using original content, students are encouraged to use royalty-free images and music in their projects. Where copyrighted content is used, students properly credit authors and artists.

The Alternative School (A-School)

In addition to using technology in their subject area classes, A-School students:
- Use technology to facilitate the A-School's democracy-driven culture by enhancing the efficiency and privacy of voting (student response systems).
- Use technology to support communication with a global community (video conferencing).

Computer Science

Students in computer science courses investigate the following topics at the introductory and advanced levels: program design, principles of object-oriented programming, programming constructs, testing and debugging programs, analysis of algorithms, standard data structures, standard algorithms, recursion, and responsible use of technology.

The following electives are offered:

- Computer Science 912: Introduction to Computer Science
- Computer Science 913: Selected Topics in Computer Science
- Computer Science 925: Advanced Topics Computer Science

Design and Engineering Courses

In addition to Computer Science courses, students have an opportunity to take electives in design, engineering and entrepreneurship, which are offered in a three-year STEAM sequence. These courses provide students with hands-on learning experiences through open-ended projects in which they identify an authentic, human-centered problem and develop potential solutions. They then use a variety of technologies to design, prototype, and test their solutions. Course projects gradually increase in scale and complexity as students develop their knowledge and skills. Students learn and use many different tools, machinery, and software to solve these real world problems, such as: Fusion 360, Makerbot print, Python, Swift/xCode, Arduinos and other microcontrollers, soldering stations, CNC, laser cutter, plastic former, Vex robotics, to name just a few.

The following courses are offered:
- Human Centered Design
- Introduction to Engineering
- Design for Modern Production
- Mobile App Design and Development
- Principles of Electrical Engineering
- Robotics
- Design/Build
- AT Entrepreneurship

English

English students utilize a wide variety of technology resources to facilitate the research, writing and publishing process. Students will continue to publish in a variety of formats (essays, brochures, posters, newspapers, comics, blogs) using a variety of digital tools. Students in a senior year elective write, perform, and edit digital videos. Students learn to verify the reliability of online information and use the subscription databases for research. Resources are used to

investigate the background and historical context of readings, as well as for traditional literary research. Students will:

• Create visual essays and persuasive arguments using a variety of multimedia tools
• Use appropriate research resources to support student composition
• Use digital tools to publish with correct format and citation
• Assess online content for reliability

The availability of 1:1 Chromebook carts in English classrooms facilitates the writing process, allowing for real time feedback and student-centered research. Online collaborative tools (Google Docs) encourage close text analysis and promote a constructive community approach to learning.

Students in 9th and 10th Grade English contribute writing samples and reflections to a digital writing portfolio that they will continue to use throughout their High School career.

Health

Students in health classes use online resources (subscription databases) to research current events, issues, and diseases in health and nutrition. They use a variety of multimedia tools, including slide shows, videos, comics, pamphlets/brochures, posters, and infographics, to present and share their research.

Library

Providing the skills necessary to best access and use our information resources and tools, as well as devices, is paramount to the SHS Library's mission and approach in meeting the technology rich needs of teachers and students. Recognizing the various ways in which our patrons learn and study, we continually assess the best ways to provide spaces and instruction for whole classes, small collaborative group work, and independent study. Whether using a 1:1 device, a library Chromebook, or personal device, students are able to access our subscription databases, e-reference sources, online catalog, and citation tool, both in school and remotely through our EZProxy server, which allows for login through a student's Active Directory. Working with subject area teachers, students learn information literacy skills through an integrated approach, adhering to the American Association of School Library Standards.

Mathematics

Students use a variety of digital mathematical modeling tools and apps including graphing calculators and simulations to investigate and visualize mathematical concepts and analyze graphs and behaviors of functions. Faculty use digital assessments to enhance instruction and communication. Specific courses take advantage of unique applications and tools:

- High Honors pre-calculus students study basic programming and write programs to perform intricate calculations such as Riemann sums.
- AT Statistics students analyze data using statistical software (R, R Studio) to analyze data.

- Students in the Applications course create digital designs using 3D modeling software, design build prototypes using modular electronic kits (such as LittleBits) and use spreadsheets for problem-solving, data analysis, and graphic display.
- Teachers curate and provide online resources (such as DeltaMath) that provide immediate feedback while allowing students to continue their learning at their own pace. This encourages students to improve their practice and demonstrate their learning, guiding them to reflect on how they learn best, set goals, and improve their learning outcomes.
- Digital Logic Design students design and construct circuit prototypes that implement combinational and sequential logic functions which they study in the class. The construction of the circuits involves the use of logic gates and traditional electronic components which are used for prototyping in engineering.
- AT Linear Algebra students will use a TI-89 Graphing Calculator to work with matrices and vectors. This includes performing matrix multiplication, finding inverses of matrices, finding determinants, and solving a system of equations by finding the reduced row echelon form of an augmented matrix. This will enable students to work with a wide variety of real-life application problems that require solving a complex system of equations that would be otherwise too tedious to compute by hand. We will also plan to assign projects that will incorporate the use of basic programming in Python or other relevant programming languages to work with matrices and vectors.

Performing Arts

The High School Performing Arts Department uses technologies on a consistent and regular basis in all aspects of the curriculum.

In the ensembles, professional performances of repertoire being studied are often accessed and assessed. This is followed by a similar analysis and reflection of our own rehearsals and performances which are recorded aurally and/or visually. In academic courses, technology facilitates document sharing, research of historical data, and editing of compositions, as well as reference to interdisciplinary connections.

In addition to web-based resources, students have access to specialty software in appreciation, theory, digital music and theater tech courses (Finale, Sibelius, Pro Tools, Audacity and QLab).

Physical Education

Physical Education faculty leverage the convergence of fitness and technology in their curriculum to make fitness interactive and engaging, to emphasize the importance of regular physical activity in lifelong health and to help students make informed fitness decisions. Physical Education classes use a variety of technologies to record, measure, track, review and assess physical activity and its associated biometrics.

Faculty regularly incorporate technology into classes to demonstrate activities and to assess student performance. They use the digital tools to facilitate student fitness levels, perform pre- and post-assessments and assess daily performance. Teachers video-record class activity and review with students for self- and peer-assessment.

Students in junior and senior years complete an "iFit" unit which features a number of widely available personal fitness apps. Teachers introduce and demonstrate apps that students try during class; students are encouraged to continue to explore them outside of class and bring their findings back to the group.

Recent facility improvements in the Fitness Center provide state-of-the-art technology increasing students' access to health and fitness resources. Moving forward, the Physical Education Department will benefit from increased access to mobile devices for both teachers and students, digital displays in teaching spaces, as well as wearable biometric devices to gather physical activity and health data.

Science

Using technology to collect and analyze experimental data is an important skill developed virtually in all science classes. During lab activities, technology facilitates the process of gathering information with digital probes and documenting their data using spreadsheets. Students share and compare their lab results with classmates, using collaborative tools in the G Suite, to make inferences and draw conclusions. In addition, Video conferencing provides the opportunity for students to connect with experts and other students around the world to share and compare data and conclusions.

Students deepen their discussion in and out of class using collaborative online environments. Students also leverage technology to research authentic essential questions (such as "where do cities get their water?"), learning to select and cite/credit accurate sources and evaluate bias. Students have access to a variety of apps and online simulations, such as Gizmos, to investigate and visualize scientific concepts and principles. They create multimedia presentations to demonstrate and share their knowledge, and teachers sometimes use these projects as alternative assessments.

In the Science Research course, technology is an integral part of the student experience. Students curate primary source information in order to collect and analyze data amassed during their experiments, and design multimedia presentations to share their findings with the larger scientific community.

Special Education/Learning Resource Center

The Special Education Department currently provides assistive technology support to many students in the High School. Students have access to a variety of software and online tools (apps and extensions) in classrooms and in the LRC to aid students who struggle with listening, organizing, documentation, reading and writing. These tools include:

- speech synthesizers
- audio books/publications
- note taking and citation apps
- graphic organizers and outlining

- speech recognition tools
- word prediction software
- proofreading software
- talking spell-checkers and electronic dictionaries

Portable devices (such as iPads) are provided to students based on the requirements of the child's Individualized Educational Plan (IEP). In addition to facilitating academic tasks, assistive technologies help students achieve greater levels of independence, gain confidence and more willingly reach out to teachers and peers to ask questions and collaborate.

Social Studies

Students use digital tools to research both historic and current events. Through technology, they are able to explore perspectives and evaluate information. All students have access to a wide variety of resources in many formats, and the availability of digital devices allows students to engage in inquiry and project-based learning in meaningful ways.

Technology also enhances research, group collaboration, and writing, while supporting Social Studies and ELA standards. Collaborative environments, such as Google Classroom, increase communication and cooperative experiences between and among students, as well as with their teacher. Technology allows our classrooms to be visible to the world, and allows the world into our classroom, helping students to develop the skills required to be effective global citizens

World Language

Global digital content provides students in World Languages ample access to original text and media in the target language, revealing broad cultural perspectives as well as the opportunity to listen to and experience the target language in a variety of settings and contexts.

Some of our textbook resources are digital and incorporate a wide variety of teacher generated and authentic language resources to engage students with their world language studies. Additionally, teachers curate and provide online digital practice tools and platforms that provide immediate feedback while allowing students to continue their learning at their own pace, helping them to develop their vocabulary and grammar knowledge and demonstrate their language skills. The easy access to audio/video recording enables students to regularly practice their oral skills and share these audio files with teachers who review them to set and assess learning goals.

Collaborating with peers on a variety of projects (multimedia presentations, movies, portfolios) immerses students in oral and written language-rich activities that are both educational and engaging. Teachers sometimes use these projects for alternative, integrated performance based assessments.

K-12 Technology and Special Education: Supporting all Learners

Students with disabilities have access to the same instructional technology as the rest of our students and often find it useful in helping to accommodate their needs. However, students with disabilities sometimes require specific technology to overcome identified needs called assistive technology.

The District is committed to making sure that students with disabilities benefit from assistive technology and have access to those resources. The District also provides technology resources to students that have been identified with an IEP or 504 as needed. These resources could include specialized apps or hardware. In addition, accessibility features that are built into operating systems are also used to help students with disabilities. These include text-to-speech technology, voice dictation, adjusting color contrast, and the ability to zoom in on text and graphics.

The needs of students with disabilities vary widely across the grade levels and in specific content areas and the CSE/504 Committees annually review students' needs and adjust accordingly. Oftentimes, technology can be used as a bridge to overcome these varying needs and allow participation in the general education curriculum.

High School Recommendations
- Continue the rollout of 1:1 Chromebooks. Evaluate the success of the program and document trends.
- Continue to offer professional development to support teachers to make effective use of technology for instruction and assessment. Plan for the possible use of a Learning Management System for teachers to streamline communication and work for students. Offer "just in time" professional development opportunities.
- Establish formal 9-12 expectations in Digital Literacy and Media Literacy.
- Provide students with agency with their learning with meaningful integration of technology.

Assessing the use of Technology in the High School

The Technology Advisory Group, made up of representatives from each department, is used to share feedback from their respective departments' use of technology. They work together to create a vision for technology at the High School and make recommendations for the adoption of deployment of technology throughout the building. The Head Computer Teacher will summarize the work completed each year and will review it with the high school principal during the annual end of the year meeting.

Emerging Technology

A subcommittee of the K-12 Technology Committee examined emerging technology that should be incorporated in our instructional technology program. The subcommittee determined that the District should research and monitor technology in this domain, for several reasons:

- We want our students to be well-prepared and aware of what is coming
- We want students to understand these changes and how to live with them
- We need to understand why the technology is being developed (hopefully from a need)
- We believe that this technology will help students to promote their own ideas and make positive changes in the world
- We want students to understand the correlation between inequities around the world between those with emerging tech and those without; and how this affects the economy in some places and not others.

Finally, we want to ensure students have shared experiences with these technologies in an age-appropriate manner.

The following technologies were classified as "emerging technologies:"

Technology being deployed in schools **now**

- 3D Printing
- 3D Modeling
- Simulations
- Drones
- Physical Computing
    - Robotics
    - Internet of Things (IoT)
- Augmented Reality

Technology that is **increasingly being utilized** in educational settings:

- Cybersecurity
- Artificial Intelligence (AI)
- Machine Learning

Technology that will likely become more widespread in the **future**

- Natural Language Processing
- Big Data
- Micro-Learning (Digital Badges)
- Biometrics
- Blockchain
- Quantum Computing
- The Metaverse
- Financial Technology (FinTech)

A new course at Scarsdale High School, Contemporary Topics in Computer Science, is being developed to help students understand some of the most relevant topics in emerging technology, including:

- Cybersecurity
- Machine Learning
- Data Privacy
- Computer Ethics

The course will be offered in the Spring of 2023.

Professional Learning and Support
Supporting the Use of Technology as an Instructional Tool

Technology professional development aligns with the district's overall goals to improve learning and instruction, focusing on core district initiatives, including the support of project-based learning, personalized learning, and using technology tools to improve instruction (Smart Displays and document cameras, for example). In addition, professional development includes helping teachers understand how to use Google Workspace for Education to support student work across all curriculum areas, as well as learning management systems, such as SeeSaw and Google Classroom at the elementary schools, Schoology at our Middle School and Google Classroom at the High School.

The district conducted a survey to determine the current capacity of educators, and the results indicate that the vast majority of teachers believe that their ability to integrate technology into their instruction is very high. The survey also collected information about teacher requests for additional professional development, and those results will inform future annual professional development plans.

The district is committed to providing targeted, needs-based, and personalized professional development, based on each teacher's capacity and interest. For example, teachers have an opportunity to participate in various mini workshops (1-3 hours) sponsored by the Scarsdale Teachers Collaborative (ST@C), a project created with a grant from the Scarsdale Center for Innovation. Additionally, each school has a computer teacher on staff, who provides 1:1 coaching for faculty as needed, allowing teachers to pursue highly individualized professional development opportunities.

Expectations for staff are based on the content of the competencies outlined for each grade level or adopted by each department. Multiple resources in the District, including the computer teachers and the Scarsdale Teachers Institute (STI), as well as training opportunities provided by the Office of Curriculum, Instruction, and Assessment, help teachers to expand their technology competencies.

Scarsdale approaches professional development through a collaborative model, not simply as teacher and administrator training, but also through vertical and horizontal collaboration and instruction. Computer teachers work to create common themes that can be used by all content areas to promote connections. Project Based Learning is integral in engaging multiple subjects for a single goal, creating purposeful integration.

The District is committed to providing ongoing support through professional development grants, workshops, the Scarsdale Center for Innovation, and the building-based work of the computer teachers.

The effectiveness of the professional development plan will be evaluated by conducting annual surveys to determine id teachers feel that their needs are being met. In addition, surveys are used to evaluate STI courses and typically other professional development to determine if the individual experiences are effective in providing teachers with the support they need.

Training, Staff Development, and Support

It should be noted that Scarsdale has a three-tiered model to provide resources for teachers - training, professional development, and support. *Training* provides teachers with the technical knowledge for using hardware, software and web-based services in the classroom. For example, a teacher may be trained to use a tablet to document a learning experience. *Staff development* addresses issues related to using technology to enhance the teaching and learning process. Staff development includes broad-based issues related to the philosophy of using technology in the classroom, a discussion of the pedagogical rationale for technology-centric projects, as well as classroom management strategies.

While training is relatively easy to support, staff development is a complex process that involves a high level of engagement and ongoing conversations with teachers. For example, a teacher may be very comfortable using computers, but may not be able to effectively integrate the use of student devices and web-services in a classroom environment. *Support* is the process of ongoing technology training and staff development, and that is built into the staffing models at each of our schools.

The Scarsdale Teachers Institute

The Scarsdale Teachers Institute (STI) serves as an important component of the technology staff development program. As one of the established Teacher Resource and Computer Training Centers of New York State, it is governed by a Policy Board composed of teachers, administrators, university professors, community residents and parents. As one of the founding members of the Lower Hudson Teacher Center Network, the Scarsdale Teachers Institute collaborates and cooperates with other teacher centers to provide professional growth opportunities for the entire educational community.

The STI offers courses in a variety of formats, including six-week courses, weekend courses, summer institutes, research projects, and mini-grants. STI technology courses are offered at several levels to accommodate ongoing growth of staff. In addition, the STI offers courses that support the work of specific departments. The STI also oversees mini-courses that are one to three hours in length known as ST@C (Scarsdale Teachers Collaborative) offerings.

Computer Teacher Professional Learning

Technology staff must keep abreast of new technologies and instructional approaches. Since they serve as educational leaders and staff development specialists, they must also be provided with opportunities for professional development. The District supports the professional growth of computer teachers by encouraging them to work with consultants, attend and present at educational conferences, participate in site visits, and attend lectures and workshops offered by educational organizations and technology vendors.

Members of the computer staff attend regional and national conferences, including the annual ISTE Conference, FETC, and the Lower Hudson Regional Information Center's *TechExpo*, where members of our computer staff present their work for other educators in the region. In addition, computer teachers attend LHRIC Technology Leadership Institute presentations. The Institute brings leading experts in instructional technology to our region, allowing our staff to learn about the latest technology trends without the typical travel costs associated with attending a conference.

Staff Development Recommendations

Continue to use the computer teachers, library media specialists, and the ELA Helping Teachers as the primary source of staff development experiences.
Computer teachers provide staff development by examining staff development needs, working individually with colleagues, and planning and presenting workshops.

Expand the variety of staff development offerings.
Online courses, streaming video, online tutorials, and web-based meetings (ie: Zoom, Hangouts, etc) allow teachers to have access to training that can take place "anytime, anywhere." The District, in partnership with the STI, should continue to investigate how technology can be used to provide staff development experiences.

Continue to offer STI courses that attract teachers of varying technology proficiency.
An annual spring review of STI computer courses helps prepare the fall/winter STI program. The review will guide the creation of new technology courses, Summer Institutes, and other staff development experiences.

Offer differentiated training opportunities to address the increasing specialized applications of technology.
Staff development should include courses and workshops targeted to staff members who possess different technology needs.

Information Technology

The Information Technology department is comprised of the Data and Technical Services teams. The Director of Information Technology (and Chief Information and Data Protection Officer) oversees the department. With the reorganization due to the retirements of the Directors of Information and Instructional Technology during the summer of 2022, the Data and Technical Services team will be reporting to the Director of Technology and Innovation.

The *Data Services* team supports the administrators, administrative support staff, counselors, nurses, and custodial staff throughout the District in their use of technology to enhance services and allow efficient operations of their departments. The team also supports the critical communications infrastructure of the District, including Google Workspace (including Gmail, Google Docs, etc.), Infinite Campus Messenger and Portal, and Blackboard Mass Notifications, the District's emergency notification system and community outreach platform. In addition, the team is responsible for student and census data collection and analysis, as well as state and federal reporting, such as Student Information Repository System (SIRS) and Civil Rights Data Collection (CRDC), and parts of the Basic Educational Data System (BEDS) and Secure Access Management Services (SAMS) reporting. As it pertains to non-instructional systems, the team collects system requirements, evaluates system solutions, negotiates vendor contracts, project manages the implementation of software applications, manages vendor relationships, manages software upgrades, designs and implements data interfaces, and manages user accounts.

The Data Services team supports many district-wide software applications, including:
- Infinite Campus - student information system including census information, attendance reporting, student scheduling, health records, report cards, transcripts, etc. and its parent and student portals, as well as the Online Student Registration (OLR) module for families to register their children for public school attendance, preschool special education services, and private & parochial school transportation
- SMARTS from Computer Solutions - budget and human resources & payroll systems
- Google Workspace - email, calendar, and collaboration platform (co-managed by the Technical Services department)
- Blackboard Mass Notifications - emergency notification system
- Blackboard Teacher Communications - email/texting platform for high school teachers
- Schoolwires - Web content management system (co-managed by the instructional technology department)
- Destiny from Follett School Solutions - library and resource management system
- Nutrikids and MySchoolBucks from Heartland Payment Systems - food services system and its parent portal
- Transfinder - transportation and school bus routing system
- PTC Wizard - parent-teacher conference scheduling system
- Naviance from Hobsons - college and career readiness software used by High School counselors and students
- Frontline Insights Platform:
    - Absence Management - teacher substitute placement and absence management

- ○ Professional Growth - professional development management
- ○ Recruiting & Hiring - candidate application and new hire onboarding
- ○ IEP - special education
- TimeClock Plus from Data Management, Inc. - time and attendance system, including time clocks, for hourly employees such as custodians, bus drivers, and aides
- BoardDocs - system to manage and publish Board agendas and policies
- Fountas & Pinnell - system used by the elementary schools for reading assessments
- IXL and Reflex Math - instructional system used by the elementary schools
- STAR Assessment by Renaissance Learning - elementary screening assessment
- FitnessGram - system used by the High School Physical Education department for measuring student fitness
- School Dismissal Manager from Horizon Marketing Group - electronic dismissal management system used by the elementary schools and the Middle School
- Class Solver - software used by the elementary schools for the class placement process and by the Middle School for the house placement process

The Data Services team also supports data reporting and data visualization requests from staff throughout the District. The team continues to design technology solutions, implement new systems, and re-engineer processes to create efficiencies, reduce cost, improve data accuracy, and foster school/home communication.

The *Network Services* team is responsible for the management of end-user computing, the network and server infrastructure, the District's phone system, and network and cybersecurity.

The network staff configures, updates and manages the District's servers and manages computer software and updates throughout the District. The servers support computer applications and systems mentioned under Data Services above, as well as printing, backup, and network services. The team also manages the storage and backup of student, teacher, and staff data.

The network services team is responsible for the network infrastructure, including the fiber-optic backbone, network switches in all buildings, as well as the instructional network, bring-your-own-device (BYOD)network, and guest wireless network.

During the last few years, crucial upgrades to the core technology infrastructure were made, including:

- Upgrade of the Aruba wireless network controllers and access points in the elementary, Middle and High schools to new access points which support the next generation wireless protocol
- Added second 10 Gigabit wide-area ring network (WAN)
- Upgrade of District's Internet connection from 1 Gb, with 500 Mb failover to dual 2Gb redundant connections. In addition, DDoS protection was added to each 2Gb connection
- Continued migration of physical servers to virtual server clusters

- Implementation of Jamf for management of Mac OS and iPad devices
- Migration of the District's Internet filter from an appliance-based to a cloud-based solution (Securly), as well as upgrade to support 10 Gb bandwidth
- Implementation of Securly for Internet filtering of K-12 take-home devices
- Implementation of a Perimeter Network (DMZ) for externally accessible district web servers
- Completion of a comprehensive cybersecurity assessment and applied corrective actions where suggested
- Installation of server and network infrastructure to support video surveillance and recording district-wide
- Enforcement of Multi-Factor Authentication for staff

With the completion of these projects, the District's server infrastructure has been upgraded to the latest technology, offering greater server resilience, stability, and performance. It also improves local, wide-area, and wireless networks that provide the bandwidth and security to support the growing number of mobile devices as illustrated in the instructional technology plan, as well as the systems and devices required for administrative technology support.

Highlights of planned projects are:

- Replacement of the Core network switches in every building
- Upgrade aged wireless switches
- Supplement video surveillance system to allow access from external and mobile devices, e.g. police department
- Create a Virtual server cluster by adding a second server to our Perimeter Network (DMZ) server
- Survey the District's wireless network and add additional Wi-Fi access points where needed to create a ubiquitous wireless environment
- Extend wireless coverage to select outdoor facilities, e.g. athletic fields and recess areas
- Replacement of the current help desk system (Web Help Desk) with a comprehensive technology asset tracking and help desk solution (One to One Plus)
- Migrate current printing solution to Papercut. This will allow for a "print and release" style printing which will reduce paper and ink cartridge waste
- Add Airtame wireless adapters to High School classrooms which will eliminate the need for redundant computer devices
- Add a third internet connection dedicated exclusively for the guest wireless network allowing the District to increase available bandwidth and strengthening of network security
- Replace on-premise aged district storage and virtual clustered servers with the newest, state-of-art storage and server solution
- Migration of all Windows computers to the Windows 11 operating system

The *Technical Services* team is responsible for purchasing all computers, display technology, electronic equipment, and technical service contracts. The team inventories and supports all

desktop computers, laptops, Chromebooks, and tablets in the District, as well as hundreds of printers, scanners, display devices, digital cameras, document cameras and other peripherals in labs, libraries, classrooms, and offices. Current hardware purchasing projections indicate that the active hardware count for computers, laptops, Chromebooks, iPads, and peripherals will increase to over 8,000 devices.

The District has committed to a four-year hardware purchase/replacement cycle for desktop computers and mobile devices. All other equipment is replaced when it is no longer useful, but no sooner than four years after it has been purchased. With the increased deployment of mobile devices and one-to-one programs, the need for equipment repairs has grown exponentially. Certified technicians in the Technical Services team are dealer-authorized to perform on-site repairs for Apple products.

In 2016, the team implemented the Solarwinds Web Help Desk system to streamline technical services operations. This implementation was critical to allow efficient and timely support of technology throughout the District.

The team also provides a variety of audiovisual services, including:

- Installation, repair and maintenance of audiovisual equipment, SmartBoards and data projectors
- Training faculty and students on the use of audiovisual equipment
- Installation and configuration of equipment, and setup for speakers, events, and workshops
- Operation and maintenance of the sound systems in school auditoriums

Scarsdale Cable TV and Streaming Video Services
The Technical Services team produces all video programming for the school community. This includes the Educational Access Channel (Cable 77) for Cablevision customers and (Cable 27) for Verizon customers which also broadcasts to the Scarsdale community. Television productions include:

- Board meetings
- Scarsdale TV bulletin board messages and emergency notifications
- Sporting events and performances
- Guest speakers
- Special projects

All aspects of video production are completed in-house, including editing, archiving, and delivery. The District uses MyVRSpot to auto-generate closed captioning for school board meetings. A complete listing of updated programming can be found on the District website, www.scarsdaleschools.org/tv

Planned technical services projects include:

- Replacing older Smart Displays as needed.
- Replace old video production equipment, to standardize the system, have permanent installations in the two most used sites (Rooms 170-172 and HS Auditorium), and to build redundancy. All components from each site will be able to be used as backup for the others, or used for any special, larger than usual, event.
- Build fiber video network in the High School for Cable TV video productions, utilizing existing 1 Gigabit Fiber Optic Backbone.
- Implementation of automated announcements via the District's Valcom public address system, integrated with automatic door locking for emergencies

District Technology Goals

The New York State Education Department requires that Districts include three to five District technology goals in their Technology Plans. The following goals have been identified by the K-12 Technology Committee, based on teacher and parent feedback:

Goal #1: Digital Health and Wellness

The District technology team will make recommendations and guidelines for the use of technology that support digital health and wellness, balancing the use of technology to support the District's strategic vision for instruction with a healthy lifestyle.

Why did we identify this goal?

The pandemic resulted in a dramatic increase in technology usage by students and teachers. Parents have expressed concerns about this increase, and want to know "how much is too much?"

Action Steps for this goal

The District will engage in a self-study to determine the optimal use of technology that supports digital health, wellness, and balances online activities with offline work. After completing the study, the District will make recommendations for best practices and share them with students, staff, and parents. After the information is shared, a second evaluation will determine if appropriate lifestyle changes have been made.

Goal # 2: Coding Opportunities: Access and Inclusion

All students will have access to technology experiences that center on coding and computational thinking.

Why did we identify this goal?

The District provides multiple opportunities for students to engage in activities that support computational thinking. These experiences include robotics and the use of coding environments at the elementary level, a half quarterly 6th grade coding experience, and Computer Science classes at the High School level. This goal will include the expansion of the 6th grade coding experience, as well as the examination of practices that may impede access to coding experiences in the High School.

Action Steps for this goal

Students in the High School will be administered a survey to help determine if there are barriers or biases that prevent students from taking coding classes. In addition, student focus groups will be convened, and the feedback from those discussions will be analyzed by High School staff and administration to look for indications of barriers that may prevent students from taking

coding classes. These barriers could include perceptions about course content, teaching methodology, gender distribution in classes, required prerequisite classes, and other factors. After the analysis, a series of actions will be developed to help mitigate the barriers. Another series of surveys and focus groups will be conducted in subsequent years to determine if the actions have impacted the barriers. In addition, student data will be analyzed to determine if coding classes have increased enrollment and/or if there is a greater number of female students who are taking classes.

Goal #3: Media Literacy

All students will graduate with an understanding of how bias can impact reporting and consumption of media. To combat media bias, students will use multiple information sources to conceptualize their own knowledge of the news.

Why did we identify this goal?
Before the pandemic, K-12 children were spending more time than ever consuming digital media on personal devices and computers. Then during the pandemic, their lives shifted to a primarily online learning and social environment, which for educators and parents has created a social imperative. Research indicates that children are not prepared to detect the underlying meaning or bias embedded within the images, videos, text, and music they routinely consume online. They often lack the critical thinking skills to identify the purpose of digital media content and the intent of content creators. Media literacy provides explicit instruction on how to deconstruct and decode media messages so that their purpose is exposed.

Without an ability to analyze digital media, online consumers of all ages put themselves at risk. They can be seduced and persuaded to act in any manner specified by an Internet influencer, whether that person's motive is financial, political, social, etc. Media literacy provides students with the intellectual skills to break down the process for creating media content, embedding a persuasive message or call to action, and sharing content that can reach large audiences. An understanding of how digital media messages are designed is essential to keeping citizens in a free society properly informed and less vulnerable to carefully crafted propaganda.

We have begun the necessary steps of introducing this topic to a group of educators K-12. We plan to create a shared vision, specific learning objectives for each grade level, and ways to measure student success. Since Media Literacy is changing, we want to make sure that our goals and expectations are fluid and incorporated easily into the already established curriculum of our teachers. We want to make sure all embrace this work, so a deep understanding of where these skills may already be present is first necessary before adding. This may take longer than three years, but we are hoping to make progress soon on this critical work. Below is our best thinking for essential questions to guide our work.

Essential Questions:

1) How do we define media as a continuum K-12? How does our definition of media integrate into the K-12 curriculum?
2) How do we ensure that skills are taught at each grade level?
3) How do we measure the effectiveness of what students have learned through their media literacy lessons?
4) How do we build capacity in the teachers to teach these skills organically in their curriculum and instruction?

Action Steps for this goal

The first part of this initiative will involve a student self assessment survey that will be administered in Social Studies classes. The High School Head Computer Teacher will share the results of the survey and collaborate with members of the Social Studies department to develop a series of lessons about media bias and consumption. Experts or consultants in this domain will help to develop instructional materials, and a follow-up survey will measure and evaluate the change in student attitudes about media bias. In addition, online subscriptions will be purchased to serve as a resource for student understanding of media bias. After the first year of this implementation, the instructional materials will be revised as needed in order to address any lack of understanding by the students.

The success of the goal will be determined by the percentage of students who indicate their understanding of media bias. The first three years of this process may be more exploratory and fact-finding before actual implementation. We will work closely with the teachers and administrators in the K-12 group to find opportunities to integrate Media Literacy into curriculum and instruction seamlessly. Teachers should see value in this work, and we will support them as we move forward. As we start to map out our strands of what should be taught, we will help create project ideas and rubrics for assessment. We want this work to be organized so that it is easy for the teachers that need to teach important topics and meaningful for the students to apply to their everyday lives.

Goal #4: Communication

The District will increase and enhance communication about District technology offerings and opportunities to students, parents, and teachers.

Why did we identify this goal?

Focus groups of both parents and teachers indicated areas where increased communication would be beneficial. These areas include technology course descriptions, technology opportunities for students, and examples of student work from technology courses.

Action Steps for this goal

The Technology Staff will explore a number of ways to increase communication, including:

- On-demand webinars, allowing parents to learn about the topic that they are interested in, at the time they need the information (just in time learning).
- Creating/sharing a Parent Technology Learning Guide on individual school websites.
- Sharing and highlighting technology initiatives with the district Public Information Officer.
- Using Twitter to share and highlight technology in action in our classrooms.
- Profiling technology initiatives in the District's *Insight* Magazine.
- Sending periodic emails from Computer Teachers and Librarians can help to establish a connection with parents.
- Sending periodic newsletters that highlight the work of computer teachers and librarians.
- Working with the PTAs on parent programs.
- Creating a technology video library (example: https://youtu.be/7s36YxYtKE4 explaining program, topic overviews, etc.)

Funding Technology Resources

The District purchases computer equipment and peripherals using a four-year hardware lease/purchase agreement. Old or obsolete hardware is recycled at the end of the year, and the District receives revenue from a recycling company that goes into the general operating fund. In addition, the District participates in the federal eRate program that provides partial reimbursement for technology operations.

Software is typically purchased through educational licensing and maintenance agreements, allowing for cost savings. Whenever possible, the District uses software licensing to reduce the cost of purchasing commercial software. In addition, the District purchases education licenses of software products that are significantly reduced from the price of consumer versions. New York State provides the District with approximately $75,000 of funding for software each year to offset budget costs.

The tables on the following pages outline the hardware lease/purchase plan for the next three years, as well as the implementation plan for technology projects. Detailed hardware and software purchasing projections are developed in January and are reviewed by technology committees and District administration before being presented to the Board in February. Obsolete hardware is identified for replacement, and a program needs assessment determines new hardware that will be purchased. These plans are reviewed with members of the District K-12 Technology Committee. Purchasing plans are finalized in May, and orders are typically placed in late June/early July.

Instructional Technology Hardware Budget Projection

The three-year budget projection provides summaries of detailed budgets that are used for planned instructional hardware purchases. *These projections only serve as estimates* - it is very difficult to predict hardware prices and needs for future years. The *District* hardware category is used for funding hardware that is deployed District-wide, and sometimes used to fund new initiatives. Approximately $25,000 in the District budget is reserved for unanticipated expenses. After three consecutive years of flat hardware spending, it is anticipated that a budget increase in the 2022-23 budget will be needed to cover increased costs due to inflation. As the projection indicates, the budget may be reduced to its current level in future years.

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Year: 2022-2023

Budget Projection
Elementary            $405,000
Middle School         $425,000
High School           $430,000
District              $340,000

Total                 $1,600,000

Year: 2023-2024

Budget Projection
Elementary            $405,000
Middle School         $420,000
High School           $445,000
District              $280,000

Total                 $1,550,000*

Year: 2024-2025

Budget Projection
Elementary            $415,000
Middle School         $455,000
High School           $380,000
District              $300,000

Total                 $1,550,000*
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*This number may be increased to $1,600,000, matching the 2022-23 budget, if inflation continues to impact hardware purchasing.

Appendix A: Informing our Vision

Members of the Technology Committee attended and presented at the following conferences, allowing them to gather information about the latest technology trends:

National Conferences
ISTE Annual Conference
American Association of School Librarians
URI Summer Institute in Digital Literacy
Princeton Alumni Entrepreneurship Conference

Regional Conferences

TechForumNY
Lower Hudson Tech Expo
Lower Hudson Technology Leadership Institute (TLI) Presentations

In addition, the Director of Instructional Technology and Innovation and the Director of Information Technology attended meetings of the following local organizations:

New York Technology Educators Network (NYTEN)
Infinite Campus Hudson Valley User Group

Websites

Common Sense Media
https://www.commonsensemedia.org

Creative Computing (The ScratchEd group, Harvard Graduate School of Education)
http://scratched.gse.harvard.edu/guide/

Exploring Computational Thinking (Google for Education)
https://www.google.com/edu/resources/programs/exploring-computational-thinking/

American Association of School Librarians Framework for Learners
https://standards.aasl.org/wp-content/uploads/2017/11/AASL-Standards-Framework-for-Learners-pamphlet.pdf

Scarsdale Middle School 1:1 Computing Website
https://sites.google.com/scarsdaleschools.org/sms11computing/vision

Technology Planning Resources

ISTE Standards for Students

https://www.iste.org/standards/iste-standards-for-students

COSN Framework

https://www.cosn.org/careers-certification/framework-of-essential-skills/

NYSED Digital Fluency Standards

Lower Hudson Regional Information Center Technology Leadership Institute

Other Resources

Edvolve Learning Framework

Fostering Powerful Use of Technology Through Instructional Coaching

Edutopia Technology Articles