In the last 12 months, RCPS technology has continued to innovate and improve. During the school year, we deployed new imaging software, updated servers and wiring closets, visited classrooms regularly, provided just-in-time training, and so much more. This summer we refreshed 100 Chromebooks across K12, project managed technology at 77 Grove Street, and hosted a two-week technology camp for teachers. Over the year, we examined how new and cutting edge technology such as Artificial Intelligence and Virtual Reality can help improve learning and prepare students for the future.

The Right Tools for Teaching and Learning

Students in grades K through 12 have greater regular access to technology due to the addition of Chromebooks in classrooms. With Chromebooks and the Google Domain rcpsvt.org, we can customize student and teacher experience based upon building, grade, and classroom. Also, teachers can build groups to differentiate the resources and experiences delivered to students. Technology supports teachers’ ability to create personalized experiences.

Google Classroom, our Learning Management System, continues to change and grow. It allows teachers to build course containers, push out content, share and review assignments, and give feedback to students. It is a product that students can access from Chromebooks at school, as well as anytime, anywhere from phones and other devices.
We incorporate Universal Design for Learning (UDL) into our instructional tool selection so that all students can succeed. Read-And-Write for Google provides support tools for all students in reading, writing, and research. All students can access this powerful product at school and home by logging into the Chrome browser with their rcpsvt.org Google account. SnapVerter is another tool that allows teachers to transform classroom paper (like printed tests) into readable PDF documents for easy sharing and listenability via Google Drive. Also, Chromebooks, Google Tools, Add-ons, and Apps can help students with special needs access the curriculum through various learning supports.

We continue to work on the issue of digital equity. This year, the RHS library allowed students to check out Chromebooks for home use. We want to expand this option to students in other grade levels.

For more information about how we are planning for the future, please visit the RCPS Website to review the 2019-2025 Technology Plan.

**Flexible Learning Environments**

Rutland Public Schools has flexible technology in every building. There are over 121 Chromebook computer carts shared within buildings. We also have stationary labs, Maker Spaces, STEAM spaces, and a presentation studio. In K2 we’re reimagining how libraries can host LEGO spaces. Stafford Technical Center is putting the finishing touches on Lego tables for NE and NW libraries.

Maker/STEAM spaces contain incredible tools:

1. Laser cutters
2. 3D printers
3. VR
4. Hand tools
5. TVs and projectors
6. Electronics like Arduino, Sew Electric, Makey-Makey
7. Video, Sound and Photography Tools
8. Cardboard and Paper Creation and Construction Tools
9. Robots- EV3, Ozobots, Bee-Bots, Blue Bots Cozmo
Seamless Technology

Our department provides technical support to the entire organization. There is a growing overlap between the work of IT and the business office, maintenance, and education. Projects like cameras, server storage, bussing, HVAC, and door controls all require technical staff support.

Wireless technology is seamless across the district. Users can move from building to building without interruption to their wireless access. We have a separate Guest network for student and teacher personal devices that are isolated from our internal network for security.

In collaboration with the data analyst, our team has streamlined user account through scripting and products like Clever, which provides single-sign-on access for students to a variety of online assessments and practice tools.

CoSN Report

In a 2019 report, CoSN shared five key hurdles driving K-12 Innovation. We’ve alluded to two of the hurdles above, scaling and sustainable innovation, and digital equity. CoSN also mentions the gap between technology and pedagogy, ongoing professional development and technology and the future of work. The rapid advances in technology are putting pressure on teachers, technology staff, and other employees to refresh our skills and change our practices.

Technology Support

Five technology staff members (including the director) provide services and user support throughout the district in 11 buildings to almost 3,000 employees and students. Support includes all wired and wireless networking, servers, storage, backups, application support and deployment, lab imaging, new computer deployment, inventory, printing management, help desk, and curriculum and instruction support. The director and team administer a variety of district-wide resources: rcpsvt.org Google Domain, Infinite Campus, Tableau, Go Guardian and much more. In the summer, technology interns deployed approximately 1000 new Chromebooks. Also, they updated and cleaned the existing mobile devices as well as 286 desktop machines.
Professional Development

One of the practices we have questioned is our capacity to provide meaningful technology professional development to teachers. Most teachers do not attend afterschool training opportunities due to a variety of conflicts, such as meetings, sports, outside duties, or family responsibilities. We will continue to offer afterschool workshops while testing out some new approaches. We believe that transformative technology implementation takes place through continual dialogue, support, and training that is personalized and job-embedded. Through the use of summer technology camps, integration, collaborative teaching, just-in-time support, and coaching stipends, we will support the advancement of innovative teaching practices.

- This summer, Jack Adams, RMS teacher, and Patricia Aigner, Technology Director, hosted a two-week Technology Camp. The camp incorporated principles of adult learning and emphasized creativity, collaboration, and higher-order thinking skills. Patricia and Jack created stations with different types of technology-based upon the International Society for Technology in Education (ISTE) standards for students. Teachers learned how to design with new tools and deepened their knowledge of the technology resources available in the district.

- The district is providing stipends to a small number of teachers to innovate and conduct technology pedagogy research at the building level. These include two K2 STEAM coaches, who will explore best practices in instructional design with robotics, programming and electronics, and coach teacher and model effective use. Another teacher is implementing the See Saw digital portfolio and communication tool using touch Chromebooks as a prototype. We plan to advertise a Virtual Reality coach at the RHS sometime this year.

- The Technology Director is joining 5th grade this year as a collaborator and coach. The goal of this project is to coach teachers and model the implementation of research-based technology tools and resources. The work will contribute to the development, communication, and implementation of tools and resources which support the digital age education of all students.
New Ideas from the Director, Technology Staff and Technology Teachers

The IT staff and teachers engage in continual learning to improve their knowledge through professional development. As educators, we work to deepen our content and pedagogical knowledge to improve our ability to teach and effectively model and facilitate technology instruction. We are concerned about the future of work, both the ethical use of technology and the impact of technology on students entering college and the workforce. We strive to learn relevant and game-changing technology: programming languages such as Python, Artificial Intelligence, robotics K-12, Virtual Reality, Virtual Reality, and much more. We teach these ideas to adults and students through courses, clubs, professional development, and afterschool activities. Here are some examples of how we continue to learn as education and IT departments.

- Patricia Aigner, Technology Director, received two GM and ISTE Scholarships in 2019 for Artificial Intelligence. She continues her work with AI this year as part of a second-year ISTE cohort and is collaborating with district employees to create learning opportunities for students using AI. Patricia attended the online CoSN Certified Education Technology Leader Foundation course and participated in the ISTE Digital Leadership Summit. Travel and online collaboration allowed her to come together and learn alongside some of the largest school districts in the country. Patricia serves as a board member of the ISTE Technology Coordinators Professional Learning Network, an international technology organization.

- Kyle Hutchins, a technician, attended the online CoSN Certified Education Technology Leader Foundation course. Kyle wanted the opportunity to join Patricia and learn together. Kyle researches Google products and the domain administration as well as many other tools used by teachers.

- Forest Immel, a technician, has many strengths as a technology problem solver. For example, Forest researched and created automated workflows for computer and Google account creation and modification, allowing for more consistent deployment. Forest coaches a First Robotics Team and is active in the Rutland MINT.

- Clarena Renfrow, an RHS Teacher, received the ISTE Making IT Happen Award from Vita-Learn in April. She attended summer computer science workshops through Code.org and also Virtual High School Training. She will be the first RHS teacher to offer AP CS through Virtual HS. Clarena is passionate about 3D printing and Virtual reality. She was the first teacher to build a chatbot alongside Patricia and the team.
- Dan Roswell, Network Administrator, is constantly looking for ways to improve our storage and network capacity. Dan explored next-generation firewall technology and tested new connectivity options, including 10Gbs fiber. Our team investigated storage area networks and will be taking professional development this fall in virtualization. Dan coaches a First Robotics Team and is active in the Rutland MINT.

- Ben Trudo, a technician, took responsibility for a multi-year project around imaging. He researched and deployed KACE Imaging and management software which was a multiyear project as there was a thorough exploration of different solutions.

- Laurie Wilson, an RHS teacher, became Nat Geo certified (National Geographic) over the summer. She continues to learn about ESRI and ArcGIS, which are used by the Freshman Team. Laurie leverages her skills as a licensed Architect for special projects like 3D Vermont, where she leads a student team annually.