

Regional School Unit No. 5 Technology Plan 2013-2016

RSU5 Schools:

Durham Community School

Freeport High School

Freeport Middle School

Pownal Elementary School

Mast Landing School

Morse Street School

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Technology Committee Membership

1. Stacey Alvarez, FMS Teacher
2. Shawn Favreau, FMS Teacher
3. Kelly Fitz-Randolph, FMS Teacher
4. Jill Hooper, FMS Librarian
5. Laura Girr, FHS Integrator
6. Liza Moore, MLS Computer Teacher
7. Kristy Johnson, MSS Teacher
8. Tom Ambrose, MSS Principal
9. Mary Moore, FHS Librarian
10. Joe Makley, Curriculum Director
11. Ray Grogan, FMS Principal
12. Kari Crosman, PES/MSS Integrator
13. Ryan Gleason, DCS Assistant Principal
14. Deb Bartlett, DCS STEM Teacher
15. Dillon Whitegiver, District Computer Technician
16. Seth Thompson, Technology Director
17. Peter Murray, Board member, Parent

Section 1: Community and Parental Involvement

Involve a broad representation of the school community in the planning process. Include a description of how the technology will be used effectively to promote community and parental involvement and increase communication with parents, including a description of how parents will be informed about the technology and its proper use.

Technology is used to effectively promote community and parental involvement and increase communication with parents. The overall goal is to provide the community with an easy to use tool with which they can stay in touch with their child's school and education. This is accomplished through multiple methods that include:

School Web Sites

Through the use of a number of web-based tools, schools in RSU5 are able to easily publish information to all community members. This includes: school calendars, general information concerning curricular requirements and goals, school information (e.g. student handbook, policies, etc.), teacher and staff web sites, and general district information like School Board minutes and agendas, employment opportunities, and news.

Electronic Mailing Lists

Each school operates an electronic mailing list for parents who wish to receive e-mail notices. In addition to official school related events, materials sent to the lists include electronic versions of the school newsletters, daily announcements, fundraising events, and volunteer requests and opportunities.

Parent Nights and MLTI

RSU5 offers an annual parent Informational night where Information is shared concerning school activities, classroom technology use, and best practices concerning Internet safety and awareness. RSU5 works closely with the TAPR committee to plan this night. The informational nights, occurring in September, have been well received and attended by the RSU5 community. RSU5 continues to try to meet the needs of the community with regard to Internet safety and awareness. This is an important topic that continues to be an area of focus for RSU5.

Student Information System (SIS)

RSU5 uses PowerSchool as the SIS for all RSU5 schools. A consolidated SIS was implemented in 2011. PowerSchool offers many communication tools for students and parents, including access to current grades, electronic versions of periodic announcements (i.e. daily/weekly announcements from the Principal or academic team, sports information,

etc.), and direct links to email faculty.

Automated Calling

RSU5 uses SchoolMessenger, a service for making multiple, simultaneous telephone calls, and email notifications. This system allows for rapid and consistent notification to parents in case of an emergency (school closings, etc.), and will potentially allow for automatic parent notification in the event of an absence.

Community Access

Currently RSU5 Community Education offers computer-related courses for members of the community.

Section 2: Vision Statement

Establish a vision statement linking the tools of technology with areas such as curriculum content, instructional practices, professional development strategies, and enhanced services. *(If you have already established a school or district-wide vision statement you may use it rather than establishing a separate statement, so long as it encompasses the requirements above.)*

Develop and recommend strategies for the inspirational and purposeful use of technology for learning in RSU5. Advocate for the resources to implement the strategies.

Section 3: Goals and Objectives

Articulate specific goals, aligned with the Maine Learning Results, for using advanced technology to improve student academic achievement.

Goal 1: To provide up-to-date training, hardware, and software in adequate quantity to promote their integration into the K-12 curriculum for the enhancement of student learning.

MLR Guiding Principles of: *Creative and Practical Problem Solver, Clear and Effective Communicator, Life-Long Learner, Collaborative and Quality Worker, Integrative and Informed Thinker and Responsible and Involved Citizen.*

Common Core Standards: Reading: *Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.*

Writing: *Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.* **Speaking and Listening:** *Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.*

- Provide effective and ongoing training and support for all users.
- Continually improve and update the technology infrastructure of RSU5.
- Standardize and license appropriate, up-to-date software and digital resources (preference given to freely available, open source software).
- Continually refresh the pool of ideas for effective integration of technology.
- Identify, articulate and implement effective uses of technology in each curriculum area and across grade levels.
- Develop and implement a realistic replacement policy.
- Add differentiation for all learners.
- Offer multiple pathways for learning.
- Create and monitor individual learning plans for student growth and development.
- Adopt a learner-centered approach.

Goal 2: To build on the lessons learned from the Maine Learning Technology Initiative. Be aware of cultural trends and recent technology initiatives and take advantage of educational and new technology tools.

MLR Guiding Principles of: *Creative and Practical Problem Solver, Clear and Effective Communicator, Life-Long Learner, Collaborative and Quality Worker, Integrative and Informed Thinker and Responsible and Involved Citizen.*

- Identify state and local lessons learned with the Maine Learning Technology Initiative (MLTI).
- Prepare all teachers to take advantage of the technology skills of students.
- Further develop student technology skills to enhance their learning.
- Assess the effectiveness of trending technologies (tablet devices, interactive whiteboards, etc) in education through a pilot approach

Goal 3: Effective and efficient use of appropriate technology to ensure that all students meet the Maine Learning Results and the Common Core.

Common Core Standards: Reading: *Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.*

Writing: *Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.* **Speaking and Listening:** *Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.*

- Provide a technology rich environment in each school.
- Assure and maintain access to computers in all areas of school buildings to support and promote learning for the 21st century student.
- Plan, design, renovate, and construct spaces to support integration of technology at the point of learning.

Goal 4: Freeport High School will implement a building-based plan for full integration of one-one technology, with a qualitative shift in the types of work, organization of instruction, etc. The planning process will include students, parents, and faculty. Proposals, topics to be discussed to include:

- Personalized pathways as options for students to meet the graduation standards, including on-line courses, self-designed projects, modular credit, etc.
- Electronic system for tracking students demonstration of proficiency on graduation standards
- Authentic field work in major content areas (not just academic tasks)
- Authentic collaboration over distance
- Authentic national and global connections
- Authentic individual and group projects
- School-wide electronic system for submitting, collecting, evaluating, and providing feedback on student writing

Goal 5: Access to and routine use of comprehensive, interconnected, managed curriculum, assessment, instruction and professional development information.

- Provide full range of digital resources linked to curriculum objectives.
- Provide personnel with technical expertise to develop and manage the student information system.
- Provide an online curriculum management system
- Provide personnel with time to develop learning experiences for students that meet the requirements for the Maine Learning Results.
- Encourage and support human resources such as volunteers, local experts to collaborate on projects.
- Develop and maintain professional resources such as access to databases, online professional development opportunities, examples and samples of student work.
- Develop and maintain protocol for information/data entry and retrieval.
- Purchase and update applications that are interconnected, share common data.
- Use data to address mandated requirements for tracking student performance and also to make curriculum, management, and budgetary decisions.

Goal 6: Provide an organizational support structure and infrastructure to ensure foundation and integration of technology.

- Provide district, school and classroom support systems (including planning, policy, leadership, training, and resources).
- Provide time and the expertise for all personnel to engage in necessary training on a daily basis. (Within staff meetings, team planning classes).
- Plan, design, renovate, and/or construct spaces (facilities) to support integration of technology.
- Adapt and adopt the ISTE NETS Teachers and Students Standards

Section 4: Identify Necessary Technology

Include a technology assessment. Gather information about technology currently in use so that what will be needed to meet new goals can be determined. Include a list of the equipment and telecommunication services that are necessary to reach the goals.

An inventory system is used to record the actual life of equipment currently in use. This system is managed by the technology department. Regular meetings of the Technology Support Team with input from Technology Leaders and Integrators drive the regular replacement of these devices. The District Technology Committee serves to reconcile what we have with what we need. A minimum of two meetings per year will bolster this assessment. Parents, students, and teachers will be included in the process as needed.

The comprehensive hardware replacement plan continues to be a necessary and informative step for the annual budget creation process. All teacher and student devices are replaced on a four-year cycle in conjunction with the MLTI plan in grades 6 to 12. Classroom equipment and networking equipment is replaced on a 5 or 6-year cycle depending on the life expectancy of the equipment in use.

The necessary equipment by grade level is as such:

- K-2: fixed classroom projection, sound amplification, mobile lab or computer lab (building based), 1:5 computer to student ratio
- 3-5: fixed classroom projection, sound amplification, computer lab, mobile lab (building based), 1:5 computer to student ratio
- 6-8: fixed classroom projection, sound amplification, interactive display, 1:1 computer to student ratio
- 9-12: fixed classroom projection, sound amplification, interactive display, 1:1 computer to student ratio

Miscellaneous Items required at all grade levels:

- Listening and recording devices
- Scientific probes and capturing hardware and software
- Software subscriptions (Teacher's domain, united Streaming, explorelearning.com)
- Document cameras in some fashion

Replacement of critical hardware on a regular cycle (laptops/computers, tablets - 4 years, classroom projection - 5 to 6 years). Need educational technology beta testers in our schools to encourage research and development. Classrooms need to support current and next gen classroom technology. The hardware needs to support the curriculum and not the other way around.

Section 5: Collaboration with Adult Literacy Providers

Describe how the program will be developed, where applicable, in collaboration with adult literacy service providers.

RSU5 is fortunate to have an extremely active community education program (RSU5 Recreation and Community Education) that continually strives to provide a wide variety of programs for community members of all ages. These offerings serve to increase both community awareness of the technology available to students as well as the skills needed to use technology effectively. That involvement has resulted in a clear commitment to collaborative efforts in increasing adult involvement with technology.

Section 6: Strategies for Improving Academic Achievement and Teacher Effectiveness

Describe how funds, specifically Ed Tech funds where applicable, will be used to improve academic achievement, including the technology literacy of all students attending schools served by the SAU; and describe how funds expended will improve the capacity of all teachers in schools served by the SAU to integrate technology effectively into curricula and instruction.

Academic Achievement

Improved academic achievement in the 21st century is tied to the availability of the appropriate technical infrastructure and tools. Awareness of and facility with the wide array of technology tools available to students and teachers is essential for improved learning. It is possible to identify significant changes in the approaches to learning resulting from the Maine Learning Technology Initiative. This program, with its 1:1 ratio of student to computer and access to technology tools anytime and anywhere, has transformed teaching and learning. All RSU5 students in grades 6-12 participate for MLTI IV (2013-2017).

Availability of staffing to provide effective and timely training and support to students and teachers is essential for improved academic achievement using technology.

Technology funding that supports infrastructure, tools, and staffing must be recognized in the budget process.

Teacher and Administrative Effectiveness

Teacher effectiveness will be improved by appreciation and application of the many ways that technology can improve their delivery of instruction as well as their research, data collection and assessment. Teachers will improve their technology skills through staff development offerings, held during staff and departmental meetings, as well as at conferences and workshops, and through just in-time support. In addition to this, teachers are creating their own professional learning networks through a combination of face-to-face and online collaboration.

Administrative capacity and effectiveness will be heightened by awareness and application of the ways technology can improve student achievement, data management, and effective and timely communication. In addition, administrators are responsible for developing a vision for the effective uses of technology within the curriculum, instruction and assessment.

To respond to this need, on-going professional development for administrators and teachers will be provided not only by local technology staff members, but also by outside presenters as appropriate.

Section 7: Integration of Technology with Curricula and Instruction

Describe how technology (including software and electronically delivered learning materials) will be integrated into curricula, instruction, and assessment and include a timeline for this integration.

Curricula

Technology is increasingly reflected in the curricula by greater utilization of system-wide collaboration system (Google Apps for Education) for educational purposes, web resources, including the RSU5 website, and curriculum specific software. In addition to accessing the resources found on the Internet, the utilization of the school system's website for classroom purposes will continue to expand. The use of technology for data collection and electronic portfolio development is also expanding significantly.

Shift to Digital Resources

RSU5 expends significant funds on textbooks, trade books, and other instructional materials. These funds are in the process of shifting toward the purchase of new digital materials. For instance, in FY13, about 12% of the district's textbook line was used to purchase a five year license for an online textbook for 7th grade mathematics, and other digital materials. Also, online services need to be evaluated and funded. Among the challenges of this shift are:

- Transition from digital textbooks to more modular combinations of free and commercial materials.
- Transition from one-time purchase to annual fees and licensing
- Managing the costs and integration of major new instructional services
- Navigating an imperfect and evolving process for evaluating and choosing new digital materials

Instruction

Integration of technology in instruction is dependent on a number of factors including: administrative support, teacher appreciation of how technology can be used, the availability of staff development and support in the uses of technology, and access to technology tools including hardware and software, all within an environment conducive to and supportive of experimentation. Additionally, instructional goals need to continue to be identified by building and district leadership. These goals will be supported through the use

and integration of technology.

Work will continue to address each of these over the next three years by encouraging teacher and administrator participation in a wide variety of workshops, promoting attendance at conferences highlighting effective uses of technology, one-to-one support in new projects, support for teaming efforts to develop classroom projects, showcasing ideas that work, and encouraging class and/or school visits.

Assessment

Technology offers a great opportunity for improving and tracking student assessment. The use of a longitudinal database for the collection of data has been started in the system. Teachers, together with administrators, are looking at local comprehensive assessment instruments to fulfill the requirements of the ESEA.

RSU5 recognizes the need to import data from local assessments into an SIS in an effort to improve the analysis of this data. Additionally, the computerized Northwest Evaluation Association (NWEA) system has been in place since spring of 2006. Since the 2010/2011 school year, students in grades 2-8 take Math and Reading tests in the spring.

The use of electronic portfolios to document students' personal learning plans is also expanding. It is anticipated that the increasing use of technology in assessment strategies will be of growing interest in the system and will drive some of the professional development offerings.

Section 8: Technology Type and Costs, and Coordination of Funding Resources

Develop a step-by-step action plan, with timeline, that includes goals, activities, required hardware and software, costs, and funding sources. Describe the type and costs of technology to be acquired and how it fits within the current structure (use the list developed in the technology assessment in # 4, above.). Designate sources of funding, specifically Ed Tech funds, E-Rate funds, and funds from other Federal programs, and state and local sources that support technology acquisition and integration. (The example below is available as an Excel document for an optional template).

Network and Security

All six RSU5 school buildings are served by NetworkMaine for Internet access. Each school has a baseline 20 mbps Internet connection. Freeport High School, as the head end of the network, has a 200 mbps connection. In the summer of 2012, all schools were intra-connected through NetworkMaine and Fairpoint effectively creating a wide area network. In addition to the Ethernet networks, RSU5 schools have a reliable wireless network. Four of the six schools have an enterprise grade network provided through the MLTI program. During the summer and fall of 2013, new networks will be installed in each MLTI school. The former MLTI networks will be moved to the elementary schools.

Internet security is maintained by a JoeBox firewall provided through NetworkMaine at Freeport High School. All Internet traffic flows through the JoeBox. Other security features are maintained at the policy and procedural levels.

Server

All six schools have a local file server. In addition to local file services, RSU5 relies on cloud based storage services such as Google Drive and DropBox for many individual needs. RSU5 is in the process of relocating all file services to a central location and understands that local file services, while still in demand, are not the critical resource of recent years. In addition to a server, each school has a small network appliance to provide some intrusion control and DHCP and DNS services. Some of these services have been moved to JoeBox. The local server also acts as a testing server for systems such as Northwest Evaluation Assessment (NWEA).

Teacher Computers and Devices

Teachers district-wide are issued a laptop for professional use. In 2011, elementary teachers were provided an MLTI laptop. This created a common computing platform in grades Pre-K to 12. Budget providing, RSU5 will continue to provide a common computing experience for all teachers. Teacher and student devices are refreshed on a four-year

cycle. This cycle is staggered by PK-5 and 6 -12.

Student Computers and Devices

Students in all schools school have access to a wide variety of computing devices. Students in grades 6-12 have access to an MLTI device in a 1:1 fashion. 6th grade students will be included in the 1:1 program formally in 2013. Elementary students have access to computer labs, laptops carts, and classroom tablets. Morse Street School and Durham Community School students have access to Apple iPads through a cart or as part of the classroom equipment. Students at Freeport High School have access to Apple iMacs and MacBooks for video editing, CAD programming, and other computer intensive software.

Student Information System

In 2011, RSU5 adopted PowerSchool as the district-wide student information system. RSU5 continues to adopt PowerSchool features. For instance, Durham Community School recently adopted an online reporting system. Freeport Middle School is in the process of adopting a similar reporting method. PowerSchool implementation continues to be a focus of the district.

Electronic Messaging and Collaboration

RSU5 utilizes Google Apps for Education as an e-mail and collaboration system. Students in grades 6 to 12 have access to a Google Apps e-mail account. Parent notices are managed through Google Apps for Education as well.

Google Apps' collaboration tools are heavily relied upon by teachers, staff, and students. Real-time collaboration occurs between students and staff on a daily basis. Google Apps use continues grow in RSU5.

Peripherals

Each building has access to a scanner to import analog documents such as student-produced artwork. Smartboards are deployed in a number of RSU5 schools. Many classrooms are equipped with sound amplification systems and ceiling or wall mounted projectors. It is a goal of RSU5 to bring all classrooms to a similar state. This includes sound amplification, mounted projectors, and reliable wireless connectivity. Funding for this goal is anticipated in the coming years.

Funding Snapshot

RSU5's 2012/13 operational technology budget is included as an example of technology funding. RSU5 has increased technology funding in recent years and continues to work to establish an acceptable funding level.

2012/13 Technology Budget Snapshot

	DCS	FHS	FMS	MLS	MSS	PES	District	TOTAL
Equipment	District	\$116,000	District	District	District	\$8,500	\$96,000	\$220,500
Other Purchased Services	\$1,400	\$3,900	\$1,800	\$1,800	\$2,000	\$2,950	\$20,000	\$33,850
Software	\$500	\$500	\$500	\$500	\$500	\$500	\$10000	\$13,000
Staff	\$60,000	\$65,000	\$3,000	\$35,000	\$28,000	\$28,000	\$165,000	\$384,000
Supplies	\$500	\$500	\$500	\$500	\$500	\$500	\$5000	\$8,000
Tech Repairs / Maintenance	\$2,210	\$2,210	\$2,210	\$2,210	\$2,210	\$2,210	\$0	\$13,260
TOTAL	\$64,610	\$188,110	\$8,010	\$40,010	\$33,210	\$42,660	\$296,000	\$672,610

Snapshot Notes:

- District equipment includes laptops for elementary staff.
- Other purchased services is primarily print management subscription.
- The district invests annually in a district wide software tool. In 12/13 it was a new library software.
- Staffing varies by school. FHS has a full time integrator. PES and MSS share an integrator/computer teacher. MLS has a part time computer teacher. District staffing includes the technology director and three technical support positions.
- Tech repairs and maintenance covers annual PowerSchool subscription costs and the library software.
- In addition to operational funding, RSU5 needs an internal grant funding process to encourage the awareness and the exploration of innovative educational technology.

Section 9: Supporting Resources

Describe the supporting resources such as services, software, other electronically delivered learning materials, and print resources that will be acquired to ensure successful and effective uses of technology.

To ensure successful and effective uses of technology, a wide variety of supporting resources will continue to be made available to students and staff. These include, but are not limited to, technical support, appropriate software and peripheral hardware, a collaboration suite (Google Apps for Education), participation in the Maine Learning Technology Initiative (MLTI), printer and copier maintenance and management, and local funding for district software initiatives.

Reliable and timely technical support is essential in order to maintain an on-demand use of technology. It serves no purpose to have technology with high capabilities if it is not in working order. Currently RSU5 works with a number of specialized service vendors (BEU) who provide repair services for some of our equipment. Each building is served by a computer support technician for basic troubleshooting and repair work. Technology support staffing was increased to three employees in 2011.

Software allows staff and students to perform the tasks associated with curriculum projects. While a basic set of core tools is provided on all computers, specialized software for CAD, graphic design, video and sound editing, etc., is available on specific machines. Catalog and circulation software plays an important role in accessing resources from our schools' media centers.

Peripheral hardware, including video cameras, scanners, midi boards, digital cameras, etc. are present in the system and will be updated as appropriate. RSU5 is considering ways to provide high quality printed output while also monitoring costs associated with printing, namely paper and toner.

As technology continues to expand in the community, RSU5 needs to assess our needs each year and decide which maintenance arrangement is best. The budget reflects the increased cost of a growing network with increased technical demands.

Section 10: Steps to Increase Accessibility

Describe the steps being taken to ensure that all students and teachers have increased access to technology. The description must include how Ed Tech funds, if applicable, will be used to help students in high-poverty and high-needs schools, or in schools identified for improvement or corrective action under Section 1116 of Title I; and how the steps taken will ensure that teachers are prepared to integrate technology effectively into curricula and instruction.

The greatest contribution toward increased access to technology comes as a result of the Maine Learning Technology Initiative (MLTI). Students and teachers in grades 7 and 8 began participating in 2002. In the fall of 2013 all students in grades 6 to 12 will receive an MLTI device.

Parallel with laptop accessibility is that of teacher preparedness. This must be addressed with equal energy - access alone is not an answer. Teachers, particularly those who will be facing students who have had years of unlimited technology access, need to be provided with multiple opportunities for training in how best to utilize the skills and interests their students will bring to the classroom. Toward that end, training available from the MLTI project will be open to all teachers in grades 6 -12.

Even with the visibility given to the current use of technology through the MLTI in grades 6-12, it is important to not lose sight of the access and integration needs of students and teachers in the K-5 program; we must promote greater integration of technology at all levels.

In conjunction with the 1:1 learning environment in grades 6 to 12, students with disabilities have seen an increase in accessibility tools. Apple, the current statewide 1:1 provider, offers a wealth of accessibility features. This will continue to be an important part of the 1:1 program in the coming years. Additional software and hardware will be purchased as needed. This need will be identified through the IEP process.

Section 11: Promotion of Various Curricula and Teaching Strategies that Integrate Technology

Describe how various curricula and teaching strategies that integrate technology effectively into the general curriculum and instruction will be identified based on a review of relevant research, and promoted to lead to improvements in student academic achievement

Close collaboration between the Curriculum Director and the Technology Director will continue to support an evolving plan for innovation in instruction over the next three years.

It is widely accepted that an approach where students are able to choose the direction of their learning is very beneficial. Research shows that students often learn more when engaged in such activities as project-based learning. Technology provides the tools that make this kind of instruction possible. The teacher no longer needs to be the expert, but rather a guide.

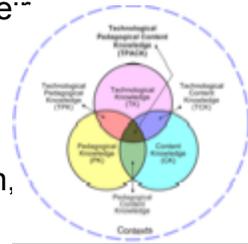
Technology also provides tools that support a variety of learning styles. In science classes, probes and projectors make experiments more visual. Geometry students use software such as Geogebra to manipulate and learn about shapes. Foreign Language students gain a level of immersion as they interact with foreign students via email, Skype, or other real-time video collaboration tools.

Technology is a valuable tool for assessment as well. The district has begun transferring many local assessments into PowerSchool as a central collection point to improve the analysis of this data. We administer the Northwest Evaluation Association (NWEA) MAP once a year to all 2-8th graders. Teachers are able to evaluate the test results, available within 24 hours after completion, and use the information to better inform their teaching practices.

Everyday Math (EDM) has an online reporting component too. Students complete an assessment in the beginning, middle, and end of the year. Teachers have immediate access to the results. Every student has his or her own login and can access lessons and activities at home. Through this same portal, parents and guardians are better able to understand the learning objectives and support their children's practice at home.

Making the most of this technology requires skilled support for teachers and students both inside and outside the classroom. Integrators are able to schedule relevant workshops and trainings for teachers. Integrators must also be available to meet with teachers and

students during the school day to provide just in time support to troubleshoot unforeseen problems that arise during the school day. Additionally, integrators must be able to share examples of techniques and tools that teachers can use to advance their instruction.



Design of Curriculum and Instruction: The research informs us that we should not teach the new technical skills and knowledge in isolation, but to embed them into regular teaching and learning. For instance, instead of teaching “how to collaborate in an on-line forum,” we will use the online forum to discuss a specific literary work or topic, while introducing and reinforcing the new skills throughout the class. This is a qualitative change that applies across the curriculum. Specific new skills are needed and occasionally taught directly, but the technology is not emphasized over required learning in the content areas.

Professional development toward changes in specific lessons and units of instruction is informed by two research-based models:

TPACK, (Mishra and Koehler¹) which attempts to show the interplay of Technological, Pedagogical and Content Knowledge required by teachers to design learning experiences for integration, and SAMR,

Redefinition	Requires the use of technology to create new tasks, activities or assessments	Requires the use of technology and content management software
Modification	Requires the use of technology to enhance or extend existing tasks, activities or assessments	Requires the use of technology to enhance or extend existing tasks, activities or assessments
Augmentation	Requires the use of technology to enhance or extend existing tasks, activities or assessments	Requires the use of technology to enhance or extend existing tasks, activities or assessments
Substitution	Requires the use of technology to substitute existing tasks, activities or assessments	Requires the use of technology to substitute existing tasks, activities or assessments

which attempts to qualify different levels of integration (toward changes more likely to bring about increases in learning: Substitution, Augmentation, Modification, and Redefinition) based on the research of Ruben R. Puentedura², who works with the *Maine Learning Technology Initiative*.

¹ Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A new framework for teacher knowledge. *Teachers College Record* 108 (6), 1017-1054.

² <http://hippasus.com/resources/tte/>

Section 12: Professional Development

Describe how ongoing, sustained professional development for teachers, principals, administrators, and school library media personnel will be provided to further the effective use of technology in the classroom and library media center.

An ongoing menu of professional development opportunities will continue to be available to teachers and staff to create job embedded professional development and learning opportunities. These opportunities will be provided by school and district technology leaders and personnel. Building-based and district-wide trainings will continue to be offered throughout the school year. These opportunities are determined by a variety of means including surveys, goal setting sessions, observation, and individual goals and needs. Training opportunities and needs vary by school. School specific goals related to technology help guide the delivery of these learning opportunities.

Information on year-round workshops, summer workshops (MLTI-sponsored training, NWEA training, Teacher's College), and annual conferences (ACTEM) are now coordinated by the Curriculum Director and the integration team. These offerings are distributed to staff frequently through various communication methods.

RSU5 Adult Education offers a variety of technology courses suitable to the needs and interests of staff members and the community.

Principals and administrators are informed about technology through conversations within professional groups (CBEA, etc.), and reports from building technology representatives and the Technology Director.

Future professional development initiatives will include:

- Training and support for technology integrators to assist in their need to keep abreast of expanding technology.
- Training and support for Library staff to respond to the increasing importance of technology in library programs and systems.
- Training for staff in the effective integration of classroom technology.
- Ongoing training in the proper use of the student information system (SIS).
- Ongoing and entry level support for common applications: email, office suite applications, web resources, website creation, and general computer maintenance.
- Built-in time for teachers to share and practice with peripheral devices and multimedia software (video, graphics, probes, projectors, etc.).

- Opportunities to consult with other districts and educational groups regarding technology initiatives and experiences.

Section 13: Innovative Delivery Strategies

Describe how the development and use of innovative strategies for the delivery of specialized or rigorous courses and curricula through the use of technology, including distance-learning technologies, will be encouraged, particularly in areas that would not otherwise have access to such courses or curricula due to geographical distances or insufficient resources.

Students previously looked to local universities and neighboring school districts to broaden their choice of courses. With the current availability of online offerings, students have more choice than ever before in how to meet their individual learning needs. Students have the option of accessing coursework through Virtual High School, the PLATO credit recovery system, and other various online courses. Each offers an expansion of curricular offerings. Students needing more advanced coursework can access college courses around the country and the world. There is an abundance of online resources available for both students and teachers. The next challenge is to find what is needed to reliably offer credit through online learning.

Section 14: Accountability Measures

Describe the process and accountability measures which will be used to evaluate the extent to which the plan activities are effective in integrating technology into curriculum and instruction, increasing the ability of teachers to teach, and enabling students to reach Maine's Learning Results.

How will our plan demonstrate the effectiveness of the integration of technology into curriculum and instruction?

There will continue to be an increase in the use of web resources by teachers, greater student use of electronic media and networks for receipt and delivery of information and products, more classroom units developed by teachers using technology, and a significant increase in student-designed projects using technology.

RSU5 will see physical changes in the learning environment as students push for more flexibility in the pace at which they learn and the times and places where instruction happens as well as in the products they create. The push from teachers will come from the need to have support when they need it both for instruction and the use of classroom technology.

How will our plan increase the ability of teachers to teach with technology?

Teachers will continue to request more advanced training in both more sophisticated uses of software and in effective integration activities. In addition awards and grants to teachers may be used to encourage greater research and development.

How will the technology plan enable students to reach Maine's Learning Results and the Common Core?

A number of the guiding principles will be met through the application of the plan. Students will become more effective communicators through collaboration with others both at school and elsewhere; they will produce high quality products using technology tools; they will demonstrate effective problem solving as they participate in increased opportunities for self-directed learning. With technology serving as the glue to hold together different subject areas, students will become integrative and informed thinkers.

How will we evaluate this plan and make a midcourse correction as needed?

The Board of Directors will determine how well we are conforming to the Technology Plan

through meetings each year. An annual technology specific board meeting occurs each November. Parents, students, and teachers have been and will continue to be invited to participate in the meeting. The Board of Directors may also employ other means of gathering input from all stakeholders, such as online surveys, input from Parent/Teacher organizations, and parent volunteers.

Appendix A: ISTE NETS-S Student Standards

1. Creativity and Innovation - Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
 - a. Apply existing knowledge to generate new ideas, products, or processes
 - b. Create original works as a means of personal or group expression
 - c. Use models and simulations to explore complex systems and issues
 - d. Identify trends and forecast possibilities
2. Communication and Collaboration - Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
 - a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
 - b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats
 - c. Develop cultural understanding and global awareness by engaging with learners of other cultures
 - d. Contribute to project teams to produce original works or solve problems
3. Research and Information Fluency - Students apply digital tools to gather, evaluate, and use information.
 - a. Plan strategies to guide inquiry
 - b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
 - c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
 - d. Process data and report results
4. Critical Thinking, Problem Solving, and Decision Making - Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
 - a. Identify and define authentic problems and significant questions for investigation
 - b. Plan and manage activities to develop a solution or complete a project
 - c. Collect and analyze data to identify solutions and/or make informed decisions
 - d. Use multiple processes and diverse perspectives to explore alternative solutions
5. Digital Citizenship - Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
 - a. Advocate and practice safe, legal, and responsible use of information and

technology

- b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
 - c. Demonstrate personal responsibility for lifelong learning
 - d. Exhibit leadership for digital citizenship
6. Technology Operations and Concepts - Students demonstrate a sound understanding of technology concepts, systems, and operations.
- a. Understand and use technology systems
 - b. Select and use applications effectively and productively
 - c. Troubleshoot systems and applications
 - d. Transfer current knowledge to learning of new technologies

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Appendix B: ISTE NETS-T Teacher Standards

1. **Facilitate and Inspire Student Learning and Creativity** - Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments.
 - a. Promote, support, and model creative and innovative thinking and inventiveness
 - b. Engage students in **exploring real-world issues and solving authentic problems using digital tools and resources**
 - c. Promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes
 - d. Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments
2. **Design and Develop Digital Age Learning Experiences and Assessments** - Teachers design, develop, and evaluate authentic learning experiences and assessment incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS-S.
 - a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity
 - b. Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress
 - c. Customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources
 - d. Provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching.
3. **Model Digital Age Work and Learning** - Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society.
 - a. Demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations
 - b. Collaborate with students, peers, parents, and community members using

- digital tools and resources to support student success and innovation
- c. Communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital age media and formats
 - d. Model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning
- 4. Promote and Model Digital Citizenship and Responsibility** - Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices.
- a. Advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources
 - b. Address the diverse needs of all learners by using learner-centered strategies providing equitable access to appropriate digital tools and resources
 - c. Promote and model digital etiquette and responsible social interactions related to the use of technology and information
 - d. Develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital age communication and collaboration tools
- 5. Engage in Professional Growth and Leadership** - Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources.
- a. Participate in local and global learning communities to explore creative applications of technology to improve student learning
 - b. Exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others
 - c. Evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning
 - d. Contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community.