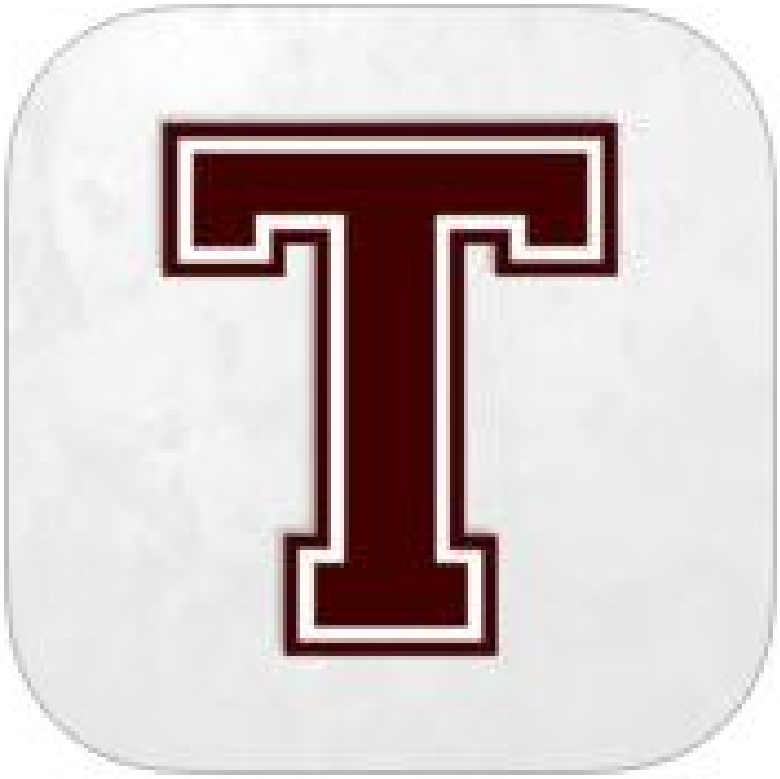
Timberlane Regional School District
Technology Plan
2017-2022



District Technology Plan
2017-18 through 2021-22
Approved by the TRSD
School Board on:

Timberlane Regional School District

School Administrative Unit #55

Contents

2016-17 District Technology Plan Advisory Committee

Name	Title
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Richard Blair	TRSD School Board Representative
Christine Descrochers	Curriculum Coordinator, Middle School
William Doughty	Teacher, Danville Elementary Technology
Geoffrey Dowd	SAU 55 Business Operations Coordinator
John Holland	Former District Technology Director
Ken Henderson	District Technology Director - Starting 16/17
Christina Hubley	Technology Integration Specialist
Beth Kisiel	Media Specialist, Danville Elementary
Mitchell Mencis	Teacher, Middle School
Lisa Paladino	Teacher, Sandown North
Lois Paul	Technology Integration Coordinator
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Kathleen Weise	Technology Integration Specialist

District Mission Statement

The mission of the Timberlane Regional School District is to engage all students in challenging and relevant learning opportunities, emphasizing high aspirations and personal growth.

Technology Vision Statement

The Timberlane Regional School District's Technology Vision is to provide an environment for students to build 21st century skills through seamless integration of technology that supports the most effective methods of learning and core instruction. Technology should enhance and build students' critical thinking, problem solving, analytical, communication, and collaboration skills while making learning more engaging. The District promotes professional development and technology integration proficiency as an essential component of the implementation and adoption of technology that embraces the philosophy of lifelong learning.

Demographics

The Timberlane Regional School District includes a High School, Middle School, four Elementary Schools, a Preschool Learning Center, and a Performing Arts Center. The District is

part of School Administrative Unit 55 and serves the towns of Atkinson, Danville, Plaistow, and Sandown. Please visit our website at www.timberlane.net.

II. Curriculum Integration

The District Technology Plan Advisory Committee believes that in order to effectively and meaningfully integrate technology, curriculum deployment plans must drive technology use and implementation, rather than technology driving the curriculum. Technology effectively integrated will prepare students for the next levels of their education and in their future careers. Today's children today are digital natives having grown up with technology around them and in their everyday lives but this does not mean that they know how to use technology to learn effectively. This is where schools and educators need to step in and teach children the best ways to use technology to learn, understand and grow.

> "Our students are entering a world in which 60% of the jobs will require technological competency. A world in which they must continue to update their occupational and technological skills in order to be successful" - James Morris

When integrated properly technology can be a very effective tool to engage students. Students will learn more when they are invested in the learning process and technology can help in this regard. Students today are called digital natives in that they grew up with technology around them and are comfortable using it. With proper technology integration into the curriculum we can teach students how best to learn with technology and get the most of it.

Technology enhance learning through differentiated instruction (DI). ASCD (Association for Supervision and Curriculum) defines DI as happening when:

- Students can be in groups based on skills, interest, readiness, or by choice.
- There is a "purposeful use of flexible grouping" while keeping the lesson's goals in mind.
- Teachers are "teaching up" and holding students to high standards.

2.1 OBJECTIVE: Curriculum Understanding by Design (UbD) documents should contain a completed "Technology Use" section that identifies relevant technology resources to support the instructional units.

Action Steps

- Work with the Curriculum and Assessment Committee for the purpose of developing a 5-year plan that will specify the integration of technology adoption. This will help to identify specific technology resource needs to support the curriculum.

- During stage 2 of the curriculum development process refine the UbD documents to include the inclusion of technology resources.

- Update the technology resources section in the curriculum UbD documents periodically as new and/or improved resources become available.

2.2 OBJECTIVE: Teachers will have online research databases available to them that are aligned to State and National core curriculum standards for classroom instruction and research.

Action Steps

- The Library/Media Services Department will acquire and make accessible, sufficient and suitable database resources on each school's library website.

- Resources may include items such as EBSCO, EasyBib, ABC CLIO Database, etc. Resources will support content curriculum and media literacy skills and will be differentiated to meet the needs of learners at all levels

2.3 OBJECTIVE: Maintain a current and comprehensive list of approved and available software and online resources, to be made accessible online to all teachers.

Action Steps

- Create websites that provide sections for listing software selections, online resources, etc. Where applicable, these resources should be mapped to associated UbD Instructional Units (Ex. Grade 7 – Ecosystems, Cultural Geography, etc.)

- Include a section for listing technology-related terminology, with identifying descriptions.

2.4 OBJECTIVE Teachers will be given the tools needed to support differentiated learning.

- Find and integrate learning applications that support individualized learning.

- Procure classroom technology that support individualized learning such as interactive projectors and a device in the hands of each student

2.5 OBJECTIVE: Teachers will continue to be provided with opportunities to participate in interactive distance learning sessions.

Action Steps

- Include in the UbD documents Technology Use section, any relevant distance learning sessions that support the instruction units. A list of most popular programs is the the Appendix.

Media Literacy Skills Development for Students

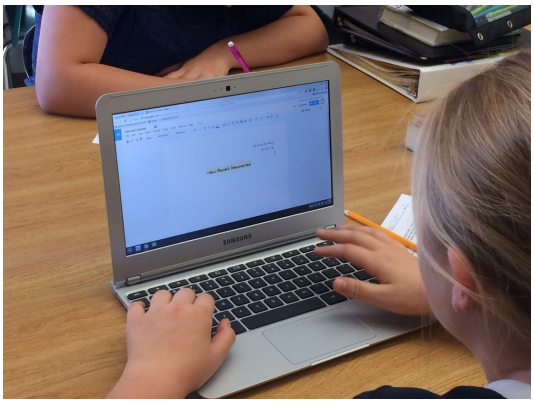
2.6 OBJECTIVE: Students should be provided the opportunity to develop media literacy skills in order to effectively locate, evaluate, and acquire information, by using various digital media resources.

Action Steps

- Develop "district-wide consistent" lesson plan units that teach students effective media literacy skills. These are included in the elementary level Information Literacy curriculum.

- Make flexibly scheduled times available for students to work on the above lesson plans in the Library/Media Centers, under the guidance of the Library/Media Specialists.

- Students will create a final project using various digital media resources, to be added to their digital portfolios.



21st Century Skills Development for Students

2.7 OBJECTIVE: Provide opportunities for students to develop and enhance key 21st century skills, in the context of core subject area instruction and learning.

Action Steps

- Continue to support the district-wide use, the standards that have been established by the Partnership for 21st Century Skills for district-wide use.
- Continue to use and refine UbD documents where the 21st century skills standards that map to the instructional units.
- Include in the curriculum UbD documents, a section that provides instructional strategies and resources that recommend lesson plan activities to promote 21st century skills development in association with core subject area mastery.

21st Century Student Outcomes

LEARNING AND INNOVATION SKILLS

Learning and innovation skills increasingly are being recognized as those that separate students who are prepared for a more and more complex life and work environments in the 21st century, and those who are not. A focus on creativity, critical thinking, communication and collaboration is essential to prepare students for the future.

CREATIVITY AND INNOVATION

Think Creatively

- Use a wide range of idea creation techniques (such as brainstorming)
- Create new and worthwhile ideas (both incremental and radical concepts)
- Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts

Work Creatively with Others

- Develop, implement and communicate new ideas to others effectively
- Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
- Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas
- View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Implement Innovations

- Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

CRITICAL THINKING AND PROBLEM SOLVING

Reason Effectively

- Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation

Use Systems Thinking

- Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Make Judgments and Decisions

- Effectively analyze and evaluate evidence, arguments, claims and beliefs
- Analyze and evaluate major alternative points of view
- Synthesize and make connections between information and arguments
- Interpret information and draw conclusions based on the best analysis
- Reflect critically on learning experiences and processes

Solve Problems

- Solve different kinds of non-familiar problems in both conventional and innovative ways
- Identify and ask significant questions that clarify various points of view and lead to better solutions

COMMUNICATION AND COLLABORATION

Communicate Clearly

- Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts
- Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions
- Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)
- Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact
- Communicate effectively in diverse environments (including multi-lingual)

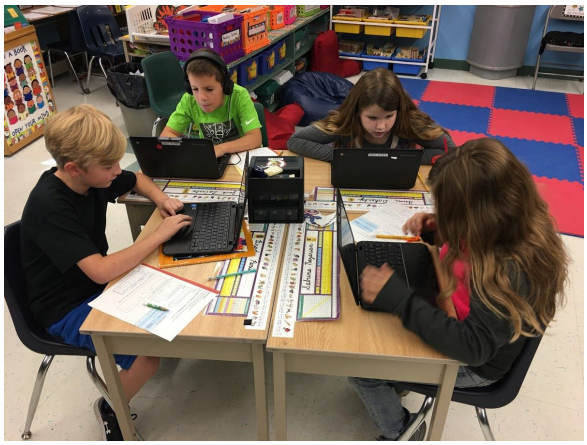
Collaborate with Others

- Demonstrate ability to work effectively and respectfully with diverse teams
- Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal

Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

People in the 21st century live in a technology and media-driven environment, marked by various characteristics, including: 1) access to an abundance of information, 2) rapid changes in technology tools, and 3) the ability to collaborate and make individual contributions on an unprecedented scale. Effective citizens and workers of the 21st century must be able to exhibit a range of functional and critical thinking skills related to information, media and technology.



INFORMATION LITERACY

Access and Evaluate Information

- Access information efficiently (time) and effectively (sources)
- Evaluate information critically and competently

Use and Manage Information

- Use information accurately and creatively for the issue or problem at hand
- Manage the flow of information from a wide variety of sources
- Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

MEDIA LITERACY

Analyze Media

- Understand both how and why media messages are constructed, and for what purposes
- Examine how individuals interpret messages differently, how values and points of view are included or excluded, and how media can influence beliefs and behaviors
- Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media

Create Media Products

- Understand and utilize the most appropriate media creation tools, characteristics and conventions
- Understand and effectively utilize the most appropriate expressions and interpretations in diverse, multi-cultural environments

ICT (Information, Communications and Technology) LITERACY

Apply Technology Effectively

- Use technology as a tool to research, organize, evaluate and communicate information
- Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy
- Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

LIFE AND CAREER SKILLS

Today's life and work environments require far more than thinking skills and content knowledge. The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills

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FLEXIBILITY AND ADAPTABILITY

Adapt to Change

- Adapt to varied roles, jobs responsibilities, schedules and contexts
- Work effectively in a climate of ambiguity and changing priorities

Be Flexible

- Incorporate feedback effectively
- Deal positively with praise, setbacks and criticism
- Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multicultural environments

INITIATIVE AND SELF-DIRECTION

Manage Goals and Time

- Set goals with tangible and intangible success criteria
- Balance tactical (short-term) and strategic (long-term) goals
- Utilize time and manage workload efficiently

Work Independently

- Monitor, define, prioritize and complete tasks without direct oversight
- Be Self-directed Learners
- Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise

- ❖ Demonstrate initiative to advance skill levels towards a professional level
- ❖ Demonstrate commitment to learning as a lifelong process
- ❖ Reflect critically on past experiences in order to inform future progress

SOCIAL AND CROSS-CULTURAL SKILLS

Interact Effectively with Others

- ❖ Know when it is appropriate to listen and when to speak
- ❖ Conduct themselves in a respectable, professional manner

Work Effectively in Diverse Teams

- ❖ Respect cultural differences and work effectively with people from a range of social and cultural backgrounds
- ❖ Respond open-mindedly to different ideas and values
- ❖ Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

PRODUCTIVITY AND ACCOUNTABILITY

Manage Projects

- ❖ Set and meet goals, even in the face of obstacles and competing pressures
- ❖ Prioritize, plan and manage work to achieve the intended result

Produce Results

- ❖ Demonstrate additional attributes associated with producing high quality products including the abilities to:
  - o Work positively and ethically
  - o Manage time and projects effectively
  - o Multi-task
  - o Participate actively, as well as be reliable and punctual
  - o Present oneself professionally and with proper etiquette
  - o Collaborate and cooperate effectively with teams
  - o Respect and appreciate team diversity
  - o Be accountable for results

LEADERSHIP AND RESPONSIBILITY

Guide and Lead Others

- ❖ Use interpersonal and problem-solving skills to influence and guide others toward a goal
- ❖ Leverage strengths of others to accomplish a common goal
- ❖ Inspire others to reach their very best via example and selflessness
- ❖ Demonstrate integrity and ethical behavior in using influence and power

Be Responsible to Others

- ❖ Act responsibly with the interests of the larger community in mind

III. Access to Technology

It is critical that the district be equipped with sufficient and reliable data network infrastructure to support the increase in the number of "computing devices" placed in production, and the increased use of online resources. To that end, this plan will describe the level of current resources, as well as include recommendations for updates and/or expansion.

Infrastructure Specifications and Design

The district currently has in place, a Multiprotocol Label Switching (MPLS) Wide-area Network (WAN). See appendix for diagram. The MPLS network carries the traffic flow of our WAN data transfers, Voice over Internet Protocol (VoIP) phone system communications, and video conferencing content used for distance learning sessions.

Each school in the district and the district office has broadband cable lines in place for Internet access. They are all currently provided and maintained by Comcast and provide the following bandwidth capacity listed below by location:

Building	Bandwidth Speed
Atkinson Academy	50 Mbps download/10 Mbps upload
Danville Elementary	50 Mbps download/10 Mbps upload
Pollard School	50 Mbps download/10 Mbps upload
Sandown North	50 Mbps download/10 Mbps upload
TLC at Sandown Central	30 Mbps download/10 Mbps upload
Middle School	75 Mbps download/15 Mbps upload
High School	100 Mbps download/20 Mbps upload
District Office	30 Mbps download/10 Mbps upload

Each school in the district and the district office has Category 5 cable installed direct to the rooms from switches strategically placed in the buildings. The switches are connected together over a fiber optic backbone. Most of the switches are Power over Ethernet (PoE) capable. Fiber optic cable also directly connects together the District Office, High School, Performing Arts Center, and Middle School.

A managed wireless system is installed district-wide that provides 802.11ac wireless connectivity in all buildings. The system includes a primary controller for network management, and for redundancy, a secondary controller for use in failover mode if needed.

Content filtering and firewall protection is provided using SonicWALL VPN and firewall hardware. Virus and anti-spam protection is provided using Barracuda spam firewall appliances. Together, these resources provide a 2-tiered layer of network threat protection.

3.1 OBJECTIVE: To maintain the Wide Area Network infrastructure that provides sufficient bandwidth to support the district's voice, video, and data volume of use now and into the future.

Action Steps

- Investigate and develop a project plan with scope and cost to install high speed and dedicated fiber between all schools.
- Configure all schools to go out through one high speed dedicated fiber Internet connection with a backup Internet connection at another location.
- Replace the Category 5 data cable at Pollard School with Enhanced Category 5 cable.
- Acquire and install 1-Gigabit replacement switches with 10GB uplinks where needed.

3.2 OBJECTIVE: To maintain a sufficient level of Internet access to provide acceptable device response times.

Action Steps

- Implement recommendations provided from the 2015-16 network assessment report.

3.3 OBJECTIVE: To maintain a robust wireless network that provides reliable and fast signal coverage in all areas needed.

Action Steps

- Monitor wireless usage, expand capacity and upgrade when and where needed.

Hardware Resources

Computer resources in the district consists primarily of Windows-based desktop and laptop computers, Chromebooks, and tablets (IOS and Android). A few select district office personnel utilize Macbook Air laptops. The desktop computers are hard-wired to the building local area network, all other devices connect over the wireless network. Printers are primarily "department level" HP LaserJet models that connect to the building local area network. A few "special purpose" printers are also utilized for unique printing needs.

Other types of hardware resources in use in the district include projectors, scanners, and document cameras. 3D printers and weather station kits were recently provided for each school.

Interactive projectors are being proposed to replace projectors on carts in the classrooms. The carts pose problems in that they have cables lying on the floors and need to be calibrated all the time. The interactive projectors will be installed in the front of the classes and require no daily calibration. They also help support differentiated learning in the classrooms by their ability to rotate through multiple screens and save work on them and share.

3.4 OBJECTIVE: Provide all pertinent staff (administrators, teachers and specialists, paraeducators, and administrative assistants) with robust and reliable computers.

Action Steps

- Replace administrator and teacher desktops with laptops to provide for the ability to work from anywhere. (lessons plans,committees, spares)

- Continue to implement staff laptops and devices on a five year cycle.

- Include detailed and complete laptop computer specification requirements in the annual computer bid that will accommodate a sufficient level of performance for the full expected five year life cycle.

- Limit acceptable computer model purchases to highly rated brand names (such as Dell, HP, Lenovo, etc.) Custom-built computers are not acceptable.

3.5 OBJECTIVE: Provide students and classrooms sufficient access to grade-level appropriate technology.

Action Steps

- Acquire the additional resources needed to obtain the following computer to student ratio:
    - Chromebooks and charging station carts for each classroom for grades K-12 (estimated 20-25 for each classroom based on current average class sizes).
    - Touch screen Chromebooks for each classroom for grades K-2 (recommendation is five for student group work, and one for the classroom teacher).
    - Reduce use of desktops/labs to specialized use only.

3.6 OBJECTIVE: Provide for a replacement to the aging projectors on carts in the district.

Action Steps

- Replace projectors on carts with short throw interactive projectors above whiteboards in classrooms. (add examples of why this is good)

- Research the use of large screen displays (TV's) in classrooms where the interactive nature of the projectors might not be needed.

3.7 OBJECTIVE: Identify and establish a sufficient and practical level of printing resources.

Action Steps

- Contract with a Print Management Company to establish strategic printer selection and placement plans for each school that maximizes paper and toner cost savings, printing accountability and secure sensitive document printing.

Business Operations Technology

Business operations technology is housed and/or managed at the district office. The following servers are currently in use, along with the applications supported:

- District office active Directory, LAN, and file storage server
- (2) Active Directory Federation Services (ADFS) servers
- (2) Citrix MetaFrame servers that provide application launch functionality for Infinite Visions
- IP Office application and voicemail server
- TimeClock Plus application server
- Building security camera application and file storage server
- SQL server for SharePoint application and database
- SQL server for Infinite Visions, TimeClock Plus, and Nutrikids databases

3.8 OBJECTIVE: Replace and/or eliminate outdated server and move to cloud computing where possible.

Action Steps

- Purchase and install a new Infinite Visions Enterprise Edition (IVEE) application server, and an iVisions Employee Portal web server. These would replace the two existing Citrix MetaFrame servers (2016-17).

- Migrate the current SharePoint application to the cloud-based Google Apps for Education. This eliminates the need for the SQL server for SharePoint (2017-18).

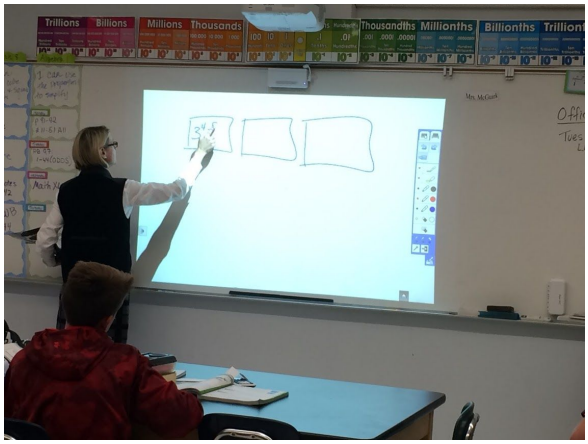
- Purchase and install a new replacement SQL server to house the Infinite Visions, TimeClock Plus, and Nutrikids databases (summer 2016 - Completed).

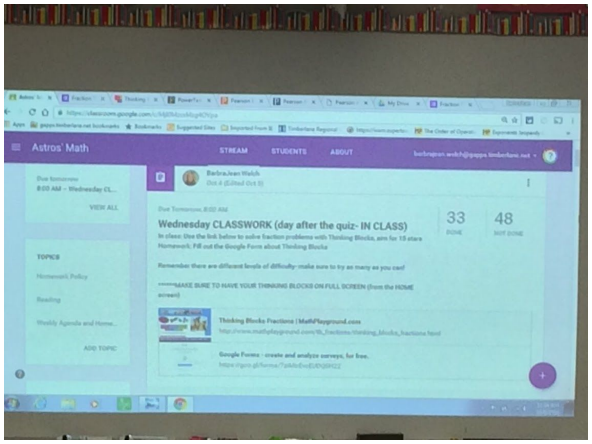
- Continually explore moving resources from servers to cloud based providers as possible. This provides for better availability and scalable solutions while saving on purchasing hardware and software updates. This also aligns with bring a greener solution to save on electricity and the need for cooling and emergency power solutions.

3.9 OBJECTIVE: Move to a single email provider that will provide robust and scalable solution.

Action Steps

- Consider only cloud based solutions that can provide retention and secuirty policies and also enable both staff and students to use the @timberlane.net address.
- Research the possible solutions including GMail and Office 365.
- Create project plan during 2016/17 school year
- Start moving staff/personal over summer of 2017





Special Education Technology

Our vision is for all of our district programs to have access to an interactive projector technology (like SMART) for specialized instruction. These locations would be:

1. TEP program at the High School
2. Intensive Needs program at TRHS, TRMS, Atkinson Academy and Sandown North
3. ED programs at TRMS, TRHS (3 boards each)

The ASD programs at Danville, Pollard, TRMS and TRHS that already have a SMART Board, but this technology will need to be maintained/replaced in the future. (put in budget)

The learning center/literacy programs at each school should have this interactive capability as well (7 schools; minimum of 2 boards for each elementary; 3 for the Reading Suite at TRMS; 3 for TRMS learning centers; 1 for TRHS literacy (Toni Mealey); 3 for TRHS learning Centers.)

In addition, I would like to have enough tablet/chromebook/iPads for students to check out in each building and use in classes. (approx. 10 per elementary and 20-25 for TRMS/TRHS)

The training for using these devices is critical; for paraeducators, special ed teachers, regular ed teachers and related service personnel.

IV. Technology Literacy Skills Development

Proficient technology literacy skills for staff is utterly important in order to ensure effective utilization of technology resources.

Current Efforts

- ✓ Summer training for new teachers - three hours by Technology Integration Coordinator
- ✓ Technology integrators schedule time as needed with various groups/individuals - during PLC time, before or after school or during a teacher's prep time
- ✓ Paraprofessionals at middle school receive ½ hour training once a month from technology integrator. These activities are cataloged in a Google Classroom. In the future this will be recorded and published so all paraprofessionals can benefit.
- ✓ CMTC annual NH tech conference - 20 vouchers available to district staff to attend for a day and staff is encouraged to present
- ✓ Vendor training supporting implementation of new technology tools, i.e. Envision, Epson whiteboards
- ✓ In-district workshops
- ✓ PLCs with technology integrators as requested

- ✓ Google Apps and Classroom is relatively new and much PD is occurring for Online Learning Blizzard Bags using Google Classroom, organizing Google Drive, enhancements on Google Apps, etc.

- ✓ Redesign Website Timberlane Tech Talk so that it can have current resources for using and integrating technology into classrooms and two Tech Integrator blogs highlight announcements, current resources and any changes to the current technologies. These resources will make use of screencasting as well to host very purposeful and short video how to's for teachers and administrators of common tech tasks.

- ✓ Technology Integrators often share by e-mail and blogs information on webinars, tips or conferences that relate to technology

Desired Goals

- ❖ Familiarity with ISTE NETS Standards for admins, teachers and students

- ❖ Develop skills for integrating technology into the instruction of subject area content

- ❖ Develop skills to foster 21st century skills for students

- ❖ Ensure access to the grade level curriculum for all students with disabilities

- ❖ All teachers should be trained to develop content with UDL (universal design for learning) principles in mind, allowing full access by all students in a variety of formats and using a variety of tools. Widely available assistive technologies such as text-to-speech and speech-to-text should be taught and utilized by the entire population.

Management Structure

- ❖ The Director of Technology and the Technology Integration Coordinator will provide goals, objectives and timelines for implementation and coordination of technology training.

- ❖ The Technology Integration Specialists will develop a resource that will inform staff of all available Tech PD activities and schedules.

- ❖ Support will be provided from administration for professional staff to attend technology-related conferences and workshops.

Technology Resources Additional Training Needs

- Envision Math Program
- Google Apps for Education
- Formative and summative assessments using technology

PD Opportunities

- New teacher orientation at summer program - minimum of 1 day of tech training
- In-district workshops during PD days (including August) and early-release days (paraeducators)
- After-school workshops
- Individual online instruction
- Out-of-district technology workshops available in area
- Webinars
- Teachpoint - TRSD's new online PD platform
- Vendor training to support the implementation of specific new technology tools and applications. Contracts for this training should be mandatory as part of the purchase agreement for any new technology.
- Opportunities to attend the annual Christa McAuliffe Technology Conference in NH. Currently TRSD purchases 20 vouchers for staff to attend. Participation to present is encouraged (free attendance is provided that day).
- Focus one PLC a month for all staff on technology and utilize technology staff resources as needed for these PLCs

Required, Sufficient, and Sustained Training

- Include appropriate technology integration goals in annual school and district goals

- Include appropriate technology components in staff evaluation criteria
- Ensure that time is designated during PD days (including August) and early-release days
- The technology integrators need to participate in curriculum change decisions and implementations
- The technology integrators act as consultants (along with Special Educators) in curriculum-writing PLCs
- As schools move to every student having a device available, teachers need classroom management and tech integration PD

Methods of Evaluation

- Survey
- Self-evaluation
- Consultation with tech integrator
- Review of tech goals

V. Community Communications & Outreach

The Timberlane Regional School District utilizes the use of technology to enhance communication between the school system and the local and global community. Technology provides access for students, parents and community member involvement in the educational process. It provides opportunities for student engagement beyond the academic setting. Technology is used to inform all members of the community about relevant district and school based events. The district will continue to expand the current online and television resources as means of communication within the schools and the community to enhance learning, engage the community, share ideas, access information, and support professional growth for staff.

5.1 OBJECTIVE: Timberlane Teachers and staff will use district web resources to give students and parents 24/7 access to instructional materials and school information. Teachers will provide increased online communication, as well as online access to grades, information and assignments with parents and the community via online resources (i.e. PowerSchool, Google Classroom, Google Sites, and others).

Action Steps

- TRMS and TRHS students and parents will access grades and attendance via PowerSchool or other future Student Information System.
- TRSD parents and students will have the opportunity to receive paperless progress reports and report cards.
- Teachers will use a learning management system, such as Google Classroom, to post instructional activities and resources for student access.
- Teachers will employ cloud technology tools (e.g. Google Apps for Education) to engage students in collaborative digital work environments both at home and school.
- TRSD Media Centers will have numerous resources that can be accessed by students at school and home.
- Parental access will be provided via the school website to the Student Handbook and Technology Acceptable Use Policy which contains ethics, safety, and appropriate use of the District's electronic resources.
- The Technology Coordinator and Tech integrators will provide professional development opportunities to advance cloud based proficiency.
- The Media specialists will share the resources available with staff and students each year.

- Media specialist will offer professional development to staff members to show them the many uses of the online databases.

- Offer parent information nights about how parents and students access our online resources.

5.2 OBJECTIVE: Continue providing paperless alternatives to deliver district information.

Action Steps

- Convert summer mailings to paperless communication. The option of paper copies will still be provided for households that do not wish to participate in the paperless communication.

- All schools will use Infosnap for beginning of the year information.

- Transition to classroom, school and district emailed newsletters as much as is appropriate.

- By 2017-18, reduce the amount of staff printed materials by 25%.

Evaluation: The schools will provide quarterly reports to the administrative team concerning printer and toner costs. Also survey parents, teachers and staff to evaluate the effective transition from paper to digital. Also evaluate if we are using less paper for online assessments.

5.3 OBJECTIVE: Timberlane Educational Network (TEN, our cable TV Channel (6 and 22)), District/School Web pages, Twitter, Facebook, Vimeo, LiveStream, Power Announcements and Phanfare will be used to share School District Meetings, student productions, school events and various informational notices for better community access.

Action Steps

- Timberlane App - Provides mobile device access to many school resources for parents and guardians.

- The TEN (rebranded as TRSD.tv) will highlight school activities, student work, and district information.

- District/School Web pages will be used to share important information for parents, staff, students and the community. The web pages also will be improved upon so that access to them are consistent and easier to navigate.

- VIMEO will be used to share school district meetings, student productions and school events.

- SmugMug will be used to share pictures of school events.

- LiveStream will be made available when possible for school board meetings and student productions.

- Facebook and Twitter will be used to push announcements and share important event dates. All district schools already have their own Twitter account and during 2016-17 will be set up with their own Facebook page.

- School Messenger will be used to share important information pertaining to schools via phone, email and text messaging. (customization of alerts for parents)

Evaluation: As technology changes rapidly we will evaluate our social media resources annually to assess if they are the best applications to share this information. Each of these items will need to be updated as information changes for the schools and district too.

VI. Projected Costs

Computer Inventory (2016-17)

Device Type	Quantity	Notes
Desktop Computers	963	Primarily located in computer labs and in offices.
Laptop Computers	802	Classroom carts, administrators, projection systems, offices.
Netbook Computers	86	Primarily located on carts at the Middle School.
Chromebooks	1,580	Primarily High School and Middle School math classrooms, Elementary School classrooms grades 3-5
Tablets	347	Primarily Elementary classrooms grades K-2.

Device Purchases by Fiscal Years

2017-2018

Chromebooks - 550 (100HS, 75MS, 75AA, 75DS, 75SN, 75PS, 25SC)

Desktops - 100 (25HS, 25MS, 25DS, 25PS)

Wall Mount Projectors - 46 (HS)

Laptops - 150 for Students, 45 for Administrators (DW), 90 for Teachers/Staff (HS)

2018-2019

Chromebooks - 550 (100HS, 75MS, 75AA, 75DS, 75SN, 75PS, 25SC)

Desktops - 100 (25AA, 25SN, 25SC, 25HS)

Laptops - 100 for Students, 65 for Teachers/Staff (MS)

Wall Mount Projectors - 46 (MS)

2019-2020

Chromebooks - 550 (100HS, 75MS, 75AA, 75DS, 75SN, 75PS, 25SC)

Desktops - 100 (25HS, 25MS, 25DS, 25PS)

Laptops - 100 for Students, 75 for Teachers/Staff (AA,SN,SC)

Wall Mount Projectors - 48 (AA,SN,SC)

2020-2021

Chromebooks - 550 (100HS, 75MS, 75AA, 75DS, 75SN, 75PS, 25SC)

Desktops - 75 (25AA, 25SN, 25SC)

Laptops - 75 for Students, 65 for Teachers/Staff (PS, DS)

Wall Mount Projectors - 45 for Teachers/Staff (PS,DS)

2021-2022

Chromebooks - 550 (100HS, 75MS, 75AA, 75DS, 75SN, 75PS, 25SC)

Desktops - 75 (25HS, 25MS, 25 DS)

Laptops - 75 for Students

Projected Costs

Below are estimated costs for hardware and device replacement during the next six fiscal years. Estimates are based on current costs of equipment.

Item	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Fiber Installation	$20,000	$300,000				
Wireless	$10,000	$10,000	$10,000			$200,000
Admin/Teacher Laptops	$83,745	$29,640	$34,200	$29,640		$83,745
Classroom Wall Mount Projectors	$112,148	$112,148	$109,710	$117,024		
Network Security Appliances				$35,000		
Servers	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
Student Laptops	$68,400	$45,600	$45,600	$34,200	$34,200	$34,200
Student Chromebooks	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
Student Desktops	$41,500	$41,500	$41,500	$31,125	$31,125	$31,125

VII. Appendix

A.. Technology Policies (Note: Policies EGA and IJNDB are in the process of being replaced by GBEF and JICL and will be included in this plan once adopted - 10/13/2016)

B. ISTE standards

a. ISTE.s standards
b. ISTE.t standards
c. ISTE.a standards

C. Popular Distance Learning Applications

ISTE® Standards

International Society for Technology in Education

ISTE Standards Students

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

ISTE® Standards

International Society for Technology in Education

ISTE Standards Teachers

Effective teachers model and apply the ISTE Standards for Students (Standards•S) as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community. All teachers should meet the following standards and performance indicators.

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 assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the Standards•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

ISTE® Standards

International Society for Technology in Education

ISTE Standards Administrators

1. Visionary leadership

Educational Administrators inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization.

a. Inspire and facilitate among all stakeholders a shared vision of purposeful change that maximizes use of digital-age resources to meet and exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders

b. Engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision

c. Advocate on local, state and national levels for policies, programs, and funding to support implementation of a technology-infused vision and strategic plan

2. Digital age learning culture

Educational Administrators create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students.

a. Ensure instructional innovation focused on continuous improvement of digital-age learning

b. Model and promote the frequent and effective use of technology for learning

c. Provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners

d. Ensure effective practice in the study of technology and its infusion across the curriculum

e. Promote and participate in local, national, and global learning communities that stimulate innovation, creativity, and digital age collaboration

3. Excellence in professional practice

Educational Administrators promote an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources.

a. Allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration

b. Facilitate and participate in learning communities that stimulate, nurture and support administrators, faculty, and staff in the study and use of technology

c. Promote and model effective communication and collaboration among stakeholders using digital age tools

d. Stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning

4. Systemic improvement

Educational Administrators provide digital age leadership and management to continuously improve the organization through the effective use of information and technology resources.

a. Lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources

b. Collaborate to establish metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning

c. Recruit and retain highly competent personnel who use technology creatively and proficiently to advance academic and operational goals

d. Establish and leverage strategic partnerships to support systemic improvement

e. Establish and maintain a robust infrastructure for technology including integrated, interoperable technology systems to support management, operations, teaching, and learning

5. Digital citizenship

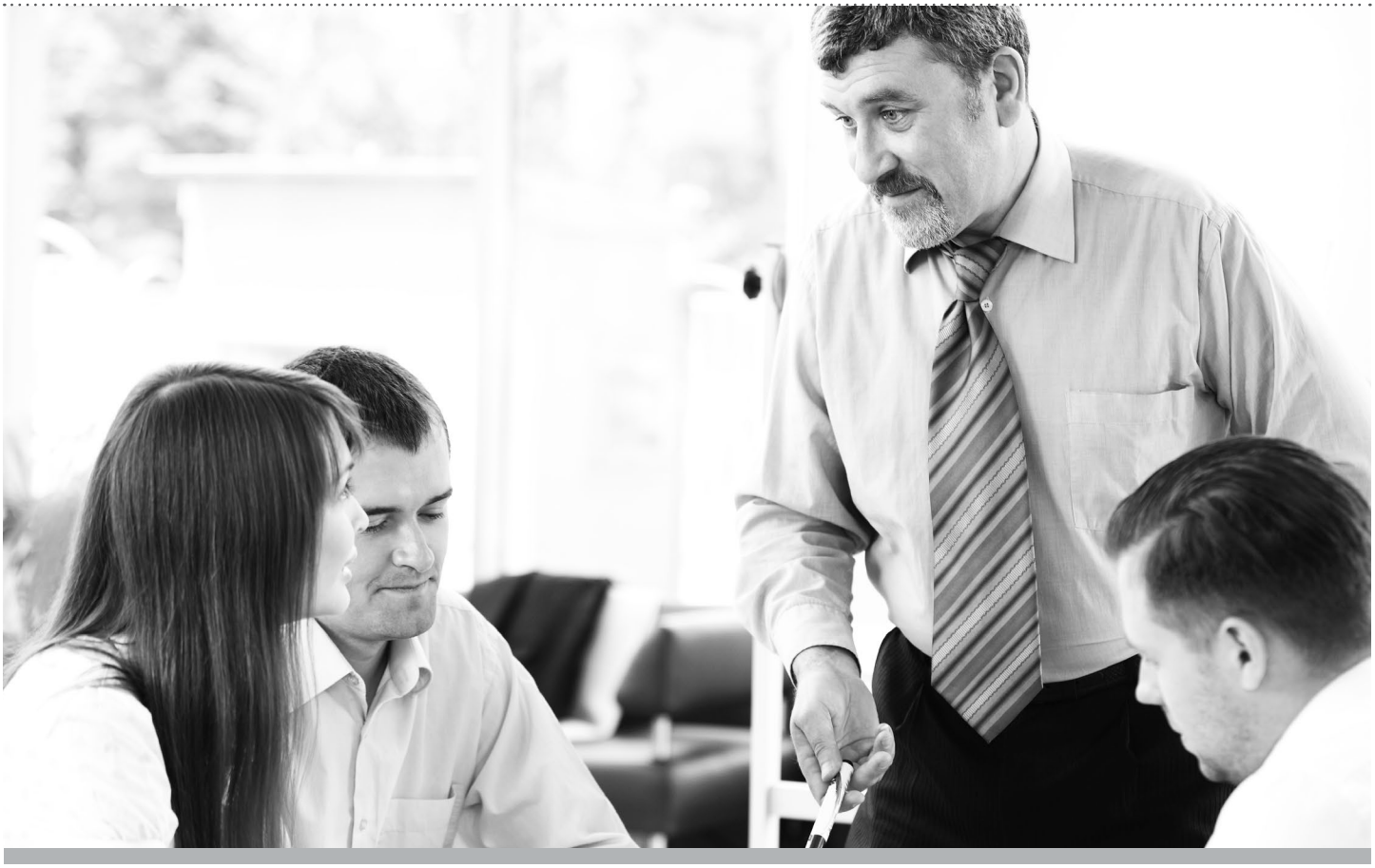
Educational Administrators model and facilitate understanding of social, ethical and legal issues and responsibilities related to an evolving digital culture.

a. Ensure equitable access to appropriate digital tools and resources to meet the needs of all learners

b. Promote, model and establish policies for safe, legal, and ethical use of digital information and technology

c. Promote and model responsible social interactions related to the use of technology and information

d. Model and facilitate the development of a shared cultural understanding and involvement in global issues through the use of contemporary communication and collaboration tools



C. Common Distance Learning Applications

Puppetry Center of Georgia

- ✓ Gingerbread Boy
- ✓ Dinosaurs Pre-K - 2nd
- ✓ Discovering Puppetry in Other Cultures
- ✓ The Little Red Hen & the Grain of Wheat
- ✓ Folding Up: A STEM-based Puppet Show
- ✓ Butterflies
- ✓ Movin' and Groovin' with Little Noodle HEALTH Series
- ✓ Making Healthy Choices
- ✓ Exploring Africa
- ✓ Exploring Antarctica
- ✓ Mexico
- ✓ Plants
- ✓ Tropical Rainforest

Muskingham Valley Educational Center

- ✓ Let's Address the Polar Express
- ✓ Dr. Seuss
- ✓ Holiday special

Timeline Studio by the Maryland Historical Society

- ✓ Daily Life Then and Now
- ✓ Pack it up; What to Bring to Colonial America

Philadelphia Museum of Art

- ✓ Learn to Look

Cleveland Museum of Art

- ✓ Angles and Answers: Origami and Math
- ✓ Arms, Armor and Simple Machines

LEARNNCO

- ✓ Light Science
- ✓ Earthquakes and Volcanoes
- ✓ Simple Machines
- ✓ Gross Me Out
- ✓ Magnets
- ✓ Forces and Motion

Inspired Classroom

- ✓ A Spooky Peek Into the Old West

Cleveland Institute of Music

- ✓ Science of Sound, Jr.
- ✓ Mozart Math
- ✓ Math and Music
- ✓ The Planets! Suite?
- ✓ La Musica de Mexico
- ✓ Writing: Imagination Stimulation

Ann Arbor Hands on Museum

- ✓ Slime Time and the States of Matter
- ✓ Fraction Interactions

Fizzics Education

- ✓ Creative Chemistry

Center of Science and Industry (COSI)

- ✓ Live Autopsy
- ✓ Gadget Works; Force and Motion

Boonshoft Museum of Discovery

- ✓ Rocks and Minerals

Nina Mason Pulliam EcoLab at Marian University

- ✓ Mixed up Mixtures and Solutions

Ohio Historical Society

- ✓ So you know the US Government?
- ✓ So you know your US Documents?
- ✓ Can She Trust You?
- ✓ Story of the Strange Bird; Origins of Thanksgiving

Cleveland Museum of Natural History

- ✓ Bodyworks; Introduction to Human Anatomy
- ✓ Rocks and Minerals
- ✓ Just Senseless; Five Senses

- ✓ Rocks and Minerals; It's Not Hard Science
- ✓ Cells; A Really Close Look at How life Works

Mariner's Museum

- ✓ Age of Exploration
- ✓ Sailing Into Thanksgiving

Glacier Bay National Park and Reserve

- ✓ Surviving Glacier Bay

Lee Richardson Zoo

- ✓ The Animals of the Mitten

St Louis Zoo

- ✓ Animal Champions
- ✓ Penguin and Puffin Coast Tour

Carnegie Museum of Natural History

- ✓ Meet the Bat Expert

Buffalo Zoo

- ✓ Sense-sational Animals

George Bush Presidential Library & Museum

- ✓ Read with First Lady Barbara Bush
- ✓ Benjamin Franklin; Live re-enactment

SOITA Learning Technologies

- ✓ Let Freedom Ring on Memorial Day
- ✓ Understanding Cinco de Mayo
- ✓ PD training for various technology
- ✓ Let's Celebrate St Patrick's Day! History of St Patrick's day

Ward Melville Heritage Organization

- ✓ Windows Through Time; Journals of American Revolutionary War Spies

Alaska Sea Life Center

- ✓ Living in the Ring of Fire
- ✓ Eat or Be Eaten in Alaska

Fort Worth Museum of Science and History

- ✓ Geometric Transformation
- ✓ STEM in Action: Scribblebots
- ✓ Icy Science
- ✓ All About Matter

The Toledo Zoo

- ✓ Food Chains

Mount Washington Observatory

- ✓ The Alpine Zone
- ✓ Working on Mount Washington
- ✓ Climate
- ✓ Extreme Weather