

ERVING ELEMENTARY SCHOOL DISTRICT TECHNOLOGY PLAN JANUARY 1, 2019 -JUNE 30, 2025

WRITTEN JANUARY 2019

MISSION STATEMENT

Our mission is to provide all students the opportunity to develop academic skills. We provide a curriculum aligned with the Massachusetts Frameworks and/or Common Core that includes reading, writing, math, social studies, science, technology, physical, education, art, and music. Throughout the academic program, we provide opportunities for children to develop skills in problem solving and decision-making. Erving Elementary School children will develop a strong sense of community. With these experiences, we expect that children will use their acquired knowledge and will develop a sense of responsibility.

We are committed to providing a school that is safe for children and adults.

We also committed to an educational environment that recognizes and develops the individual potential of all students. We are committed to learning; we have high expectations for all students and hope that each graduate leaves this school with motivation to excel. We focus on the process of learning and hope that each Erving child will maintain an excitement about learning for a lifetime.

Another aspect of our philosophy is our emphasis on responsible decision-making. We expect that each child will have plenty of opportunities to make important decisions about their learning, their activities. We hope that children will develop the courage to maintain their friendships and, at the same time, maintain their own individuality to resist peer pressure.

In short, we expect that each child will have opportunities to reach his/her individual potential, develop a respect for the individuality of others, develop decision-making skills, and feel a strong sense of community.

TECHNOLOGY VISION STATEMENT

Erving Elementary School, also known as the Erving Elementary School District, has a vision for integrating technology into every student's learning and teacher's instructional practices. Please note that any further reference to Erving Elementary School also refers to the school as its own district. The school believes that students will improve their learning through the consistent use of technology. As the world becomes technologically embedded into every area of people's lives, it is essential our students remain current in their understanding of technology. Teachers utilize technology in their daily instruction. Teachers access educational programs that enhance reading, mathematics, science, and social studies.

The school promotes the value of providing a technology curriculum for Erving Elementary School staff and students. Technology strengthens existing curricula and supports meaningful engaged learning for all students.

This plan begins with a vision for student learning, and a rationale for creating and continuing to build networked learning environments. Benchmarks derived from the Massachusetts State Chart (appendix 4) provide guidance, development, and integration of technology into the school environment.

RATIONALE

Since the last Technology Plan from 2014 to 2018, we have implemented many technology improvements. In 2014, we were able to lease three new iPad Mobile Labs (also known as iPad Carts). Two are equipped with 23 iPad Airs (5th generation iPad) and the third has 22 iPad Airs. These carts are portable and can be scheduled to be used in classrooms throughout the day. Included in this lease was a MacBook Air Mobile Lab (cart), equipped with 24 MacBook Air Laptops. Like the iPad carts, the laptop cart can also be scheduled and wheeled into classrooms. The MacBook Airs are set up for students to use their normal Erving server login and access their files like they can on the desktop computers (iMacs). Three Apple TV's have also been purchased to allow mobile devices to connect to any projector or Promethean Board and wirelessly mirror their screens on the projector. As of 2014, 95 % of the classrooms have Promethean Boards installed and utilized on a daily basis. For rooms without Promethean Boards, we have been able to setup portable whiteboards with a technology called eBeam Edge. This is a device that uses a standard projector to convert any whiteboard space (i.e.: dry erase board or wall space) into an active board like the Promethean Board.

We have implemented a web-based student information system that has dramatically improved our ability to create state reports, collect student data, and run our cafeteria. We have implemented a new web-based special education program that allows our special education team round the clock access to student special education information. Recently we installed a suite of web-based learning products from Renaissance Learning and Read Naturally. These instructional materials are used in all grade levels.

Students and staff work within a networked environment in which classrooms, labs, and library/media centers are equipped with networked computers. All computers are equipped with a suite of applications that include Word used by members of the learning community. All staff and students have network accounts.

In 2015 Erving Elementary School became a G Suite for Education (formerly known as Google Apps For Education, GAPE) School. We migrated staff email from our old service into our G Suite Gmail system. We started training staff to use the "Cloud" based G Suite Apps like Docs, Sheets, Slides, Drive and Classroom. The G Suite Apps will eventually replace our aging Microsoft Office Ver 2011 software suite.

In 2016, we started piloting Student G Suite Accounts in Grade 5 and Grades 6. This allowed them to start migrating their school work and homework to the G Suite Apps

including Docs, Drive, and Classroom. In 2018, we started expanding our Student G Suite access to all students Grade 1 through Grade 6.

In 2017, Erving Elementary applied for and received Erate funding reimbursement with a newly created program called a Category 2. Erate Category 2 allows Schools and Libraries to update their internal network appliances and connections. Because Erving Elementary was part of the CEP program, our reimbursement was for 90% of the contract cost of the project. With this funding, we were able to replace our aging WiFi system and Network Switches. Summer of 2017, Ockers installed a modern and much more advanced WiFi system with 14 Aruba Networks Access Points (AP) and two new HP Gigabyte Network Switches, one each located in the Hub/Server Room and the Mini Hub Room. Four of the WiFi APs are high capacity and are located in the Computer Lab, Library, Gym and Cafeteria. The remaining 10 APs are evenly distributed throughout the school between classrooms to allow seamless WiFi connectivity throughout the entire building. To connect all of the new APs to the respective Hub rooms, new Category 6 (Cat 6) high-speed network data cables had to be installed and run from their locations to either the Hub/Server Room or Mini Hub room depending on the AP's install location in the building. In the case of the four high capacity APs, dual Cat 6 cables were run to take full advantage of the those AP capabilities. This Aruba Network system not only allows the technology coordinator better control through a new Cloud-based management system but also vastly increases our WiFi performance that was necessary for the increased amount of WiFi devices and also increased performance and reliability for special events like all Union 28 meetings as well as town and community events that are held in the Gym and Cafeteria.

Upon the completion of our four-year lease of the 72 iPads Airs with the three iPad carts and 24 MacBook Airs and cart, we were able to purchase all these devices and components for \$1 each. Moving forward, we were then able to sign a new lease for 72 new iPads (Model 2018) and 24 new MacBook Airs (Model 2018). We have also purchased 50 iPad cases with hardware keyboards which are assigned one on one to students in Grades 4, 5, & 6. Along with these new devices, we have purchased licenses for all 144 iPads and 48 MacBook Airs to be managed by a new system known as a Multiple Device Managing system or MDM through a company called ZuluDesk. ZuluDesk allows the technology coordinator the ability to fully manage all of these devices through the Cloud which can be accessed from any location.

In 2019 we will be implementing a new budget plan that will allow Erving Elementary to replace the 24 iMac Desktops in the computer lab every four years starting in the summer of 2019. The four-year-old desktops that are being replaced in the Computer Lab will then be distributed as needed around the school's Mini Lab, Library Lab, and Classrooms that are in need of updated computers. In addition to the new desktops, we will be replacing all of the outdated Promethean Interactive Boards with new up to date devices (to be determined) that will be replaced every ten years.

Benchmark 1

A. Technology Goals (2019-2025):

1. Network/Technology Access – Maintain/add new technology to ensure the system is up-to-date with emerging technologies. Emphasis will be placed on:

- Technology budget
 - Includes staffing, infrastructure, hardware, software, professional development, support and contracted services
 - Apply for Erate funding to procure telecommunications and Internet Services
 - Portion of expenditures not covered by Erate discounts will be covered by local funds
- Technical/instructional support
 - Staffing is one full-time technology coordinator.
 - Responsibilities include: PreK-6 technology instruction, integration, professional development, troubleshooting and maintenance, and state and federal reporting
 - Additional technical support is available through corporate vendors such as Apple Education, HP/Aruba Networks, and Comcast Communications or technology coordinators within Union 28.
- Hardware and software upgrade/replacement plan
- Acceptable Use Policies regarding Internet and network use
- Review and update student policy as needed
- Review and update policy for teachers and staff

2. Professional Development – Provide high quality professional development for all staff on technologies that support classroom and professional learning

- Identify staff needs
- Design professional development workshops
- Evaluate workshops and knowledge gained

3. Curriculum – Continue aligning technology program with the Massachusetts Digital Literacy and Computer Science Standards <http://www.doe.mass.edu/STEM/standards.html> and explore new ways for integrating technology into the curriculum

- Research and expand technology resources to make learning accessible for all students, staff, and members of the Erving community

4. Communication – Utilize technology to foster and maintain school/community partnerships through access via:

- School website
- Email
- Voicemail
- G Suite For Education

B. Technology Team

The technology team consists of the technology coordinator, library teacher, school principal, a classroom teacher, a student support teacher, a school committee member and a parent.

C. Needs Assessment

Each year the technology coordinator and principal evaluate the progress the school has made in implementing its technology plan in an effort to learn from past lessons, review our progress in meeting state and local technology benchmarks, and consider revisions in relation to changes in local curriculum, technology, policy (local, state, and national level), financial circumstances and any other relevant developments. We consult with staff on an ongoing basis to determine both curriculum and instructional technology needs. The technology coordinator keeps an updated inventory of school hardware and software, ensures that all maintenance agreements with vendors are renewed and/or updated, and stays alert to infrastructure needs.

D. Acceptable Use Policy

The School has a Student Contract for Internet Use that includes the Acceptable Use Policy. This is reviewed and updated annually.

E. Budget

The Erving Elementary School budget provides funding to support the annual operating costs of our technology program.

1. The budget includes staffing, infrastructure, hardware, software, professional development, support, and contracted services (including telephone services).
2. For our district to apply for E-rate reimbursement, the technology plan specifies how the district will pay for the non-discounted portion of their costs for the services procured through E-rate. Additional monies are included within the previously mentioned items.

F. Evaluation

1. The district evaluates the effectiveness of technology resources toward attainment of educational goals on a regular basis. The staff reviews the Erving Elementary Schools Grade Level Technology Standards on a yearly basis.
2. The district's technology plan includes an evaluation process that enables it to monitor its progress in achieving its goals and to make mid-course corrections in response to new developments and opportunities as they arise. The technology coordinator continually reviews the goals with the Principal throughout the year.

Benchmark 2

Technology Integration and Literacy

According to the International Society for Technology in Education (ISTE), “effective teachers model and apply the National Educational Technology Standards for Students (NETS•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. The technology coordinator works collaboratively each week with all teachers to help them design technology-rich projects towards meeting the following standards and performance indicators:

ISTE Standards for Students

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1. Empowered Learner - Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
2. Digital Citizen - Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.
3. Knowledge Constructor - Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
4. Innovative Designer - Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
5. Computational Thinker - Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
6. Creative Communicator - Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

7. Global Collaborator - Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

Technology skills must continually be incorporated into the school's curriculum in order to prepare our students to manage, store, sort and use the information they are confronted with on a daily basis. At Erving Elementary, we emphasize the use of digital tools to facilitate the effective organization, exploration and communication of information. Technology has become a tool to enhance and extend classroom learning and enables students to access, apply, share and present information. Teachers are using technology to customize instruction to meet the diverse needs of our students. As a school, we have been moving toward this model by teaching information, media and technology skills and incorporating these skills into the curriculum and our core academic subjects. Our teaching staff continually looks for ways to collaborate and incorporate technology into the curriculum by working collaboratively with the technology coordinator.

Bloom's Digital Taxonomy is an excellent example of the process in which students learn. The model suggests:

Before we can understand a concept we have to remember it

Before we can apply the concept we must understand it

Before we analyze it we must be able to apply it

Before we can synthesize its impact we must have analyzed it

Before we can evaluate it we must have synthesized it

Before we can create we must have remembered, understood, applied, analyzed, synthesized, and evaluated.

Erving Elementary School's goals for Technology Integration:

1. All staff will be using technology daily in some of the following areas:

- Lesson planning
- Instructional Practice
- Administrative tasks
- Communications

- Collaboration
- Share technology uses with colleagues
- Assessment

2. All staff will be using technology daily to improve student learning. Activities could include:

- Research
- Multimedia
- Simulations
- Data Interpretation
- Communications
- Collaboration

3. Show technology proficiency for students and staff. Goals to achieve this would be as follows:

- Students – 85% of Grade 6 students show proficiency using the Massachusetts Recommended PreK-12 Instructional Technology Standards.
- Teachers – 60% of teachers will have reached the proficiency level as defined by the Massachusetts Technology Self-Assessment Tool (TSAT).

Benchmark 3

Technology Professional Development

- By the end of the school year 2019-2020, at least 85% of district staff will have participated in high-quality technology professional development covering technology skills and the integration of new technology into instruction with a minimum of 12 hours per year.
- Technology professional development at Erving Elementary is sustained and ongoing and includes coaching, modeling best practices, study groups and online professional development. Having a technology coordinator who works in partnership with our staff is the key for success. We believe that technology professional development must be relevant, timely, authentic and useable. It must be relevant to the task of teaching and beneficial to student learning. We believe in designing staff professional

development around curriculum projects.

- Erving Elementary School believes educators should be prepared to meet the following technology standards and performance indicators:
 - Demonstrate a sound understanding of technology operations and concepts
 - Plan and design effective learning environments and experiences supported by technology
 - Implement curriculum plans that include methods and strategies for applying technology to maximize student learning
 - Apply technology to facilitate a variety of effective assessment and evaluation strategies
 - Use technology to enhance productivity and professional practice
 - Understand the social, ethical, legal and human issues surrounding the use of technology in PK-6 schools and apply that understanding in practice
- Professional development planning includes an assessment of district and teachers' needs. The assessment is based on the competencies listed in the Massachusetts Technology Self-Assessment Tool.

Benchmark 4

Accessibility of Technology

A. Hardware Access

- Students per Instructional Computer. Erving Elementary goal is to maintain the student-computer ratio of 1:1, by continuing to add/replace equipment as technology changes.
- Erving Elementary maximizes access to the general education curriculum for all students.
 - Current software is procured for student and educator use both in school and at home
 - Hardware is procured with universal design principles and assistive technology principles such as laptops for individual use, interactive white

boards, student response systems, and iPads

- A mobile workstation with a laptop computer and digital projector is available for classroom teachers to use
- Educational Apps are made available on teacher and student iPads
- The technology coordinator keeps an updated inventory of school hardware and software, ensures that all maintenance agreements with technology vendors are renewed and/or updated and that infrastructure needs are met.
- Computer repairs can be costly. Whenever we purchase new equipment, we purchase an extended warranty on parts and labor (if available) to safeguard our technology investment.
- In order to maintain an acceptable level of computing power, maximize limited funds, and eliminate costly repairs, Erving Elementary School will replace its technology every five years; however, the specifics of the school technology replacement goals will change as we perceive new needs and refine our views of technological literacy.
 - The priorities for replacement are as follows:
 1. Mission critical application status
 - Primary network servers and equipment related to infrastructure
 - Upgrade to latest operating system
 - School-level administration systems (student admin, email, web-hosting, etc.)
 - Upgrade wiring for wireless connectivity
 2. Instructional objectives
 - Individual Education Program requirements
 - Student computer access ratio (lab and classrooms)
 - Software requirements driven by instructional goals including web based instructional learning programs

- iPad and MacBook Air Carts
 - Interactive Projectors/Apple TV in every classroom
 - Laptops for teachers
 - Online textbooks and books
3. Administrative processing requirements, such as:
- Staff workstation and office automation tools
 - Library Circulation system
 - Data reporting/assessment systems
 - Medicaid Reporting

B. Internet Access

1. Erving Elementary provides connectivity to the Internet in all classrooms including wireless connectivity, if appropriate.
2. The district provides bandwidth of 100 MB LAN to each classroom.

C. Networking (LAN/WAN)

1. Erving Elementary provides a 100 MB Cat 5E switched network and 2.5GHz and 5GHz wireless network throughout the building.
2. Erving Elementary provides services for secure file sharing, backups and scheduling internally. Email and web publishing is provided through contracted services.

D. Access to the Internet outside the School Day

1. The Erving Library provides students access to the Internet outside of the school day. Erving Elementary provides access to staff before and after

normal school hours. Students have supervised access to the Internet during the After School Program.

E. Staffing

1. The staffing for the technology program at Erving Elementary consists of one technology coordinator whose responsibilities include technology troubleshooting and maintenance, K-6 computer science research and information, technology integration, professional development, and state and federal reporting.

Benchmark 5

E-Learning Environments

- 1) Erving Elementary encourages the development and use of innovative strategies for delivering specialized courses through the use of technology. We are aware of the benefits of e-learning for:
 - a) Student instruction (e.g. educational courses, field trips and student-to-student projects)
 - b) Professional development opportunities for teachers
 - c) Social learning and use of software such as G-Suite For Education, blogs, wikis, and podcasts.
 - d) Technology coordinator maintains a school website to publish technology curriculum projects. The website can be viewed at: <http://www.erving.com>
- 2) The district maintains an up-to-date website for parents and community members. The website can be viewed at: <http://www.erving.com/>
- 3) The school complies with federal and state law, and local policies for archiving electronic communications produced by its staff and students. Email is archived for seven years. Staff are trained regarding the archiving of electronic communication and that any information distributed over the district/school network may be a public record.

