

Technology Integration for Floyd C. Fretz Middle School
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A. Reasons for more technology at Fretz

In a technology enriched age, we as an educational community need to embrace that the days of fulfilling academic requirements through 2-Dimensional means are over.

Chalkboards are being replaced with SmartBoards, overhead projectors by ceiling mounted projectors, tutors with the internet, and books with computers.

Educators in Bradford Area School District are very blessed because of the amount of technology we are receiving at the moment. Out of the four educational improvements above we as a community have three at our disposal daily.

So, where does the problem arise that we need “more” technology in the classroom? The answer is the classroom itself, being designed to meet the teacher’s needs rather than the students. All the above technology is a technology enhancement for the teacher in order to bring multimedia and topics to life “for” the student, not “by” the student or “enriching” the student. This isn’t a bad idea in any way shape or form; it is a piece of what the student needs and we need to further that piece into a whole.

When a basic classroom was poled about how many hours a day they come in contact with technology, that figure is between five and six hours (this includes internet, gaming, cell phone, and television). These students are capable of playing three hundred and eighty notes in Guitar Hero for three minutes and twenty seconds, and we expect them to sit still and watch a SmartBoard presentation on the Pythagorean Theorem. I don’t think so.

Throughout this report there will be presented the standards of technology, how we address the standards as a district before and after this integration, how the integration will effect students, and the actual solution to the onslaught of technology for the district.

B. Standards of Technology

The following standards of technology are in cooperation with the International Society for Technology in Education.

For Students:

1. Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes

using technology. Students:

- 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. Students:

- 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. Students:

- 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.

Students:

- 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. Students:

- 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. Students:

- 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.

For Teachers:

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. Teachers:

- 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 NETS•S. Teachers:

- 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. Teachers:

- 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. Teachers:

- 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 and 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. Teachers:

- 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

* - already being addressed at Fretz
(complete ISTE standards in appendix)

C. Meeting standards at Fretz

As you can see the standards for technology is quite a lengthy and involved list of standards. As a school district we are already in the process of involving these standards with our own teachings without our knowledge that they even exist.

For the teachers: out of the five major standards of technology we are addressing a section of each one in our classrooms. Out of the twenty subgroups we are addressing seven.

The seven subgroups that we are addressing are along the lines of teacher based lessons. This shows the team that the teachers within Bradford Area School District are willing to address the needs of students not only by just using technology, but also enrich the contents that we are responsible for in our own classrooms.

For the students: out of the six major standards of technology we are addressing a section of three. Out of the twenty-four subgroups we are addressing four.

To an observer of the standards one could make the assumption that in order to implement twenty more standards for students would be a source of “overkill” to not only the student but also the teacher. This is not the intent of these standards; the twenty that are missing from our school district at this time are able to be implemented because the standards left out are those in the area of actually using technology. Typing, collaboration, troubleshooting, these are all skills that students obtain through the “use” of technology rather than the “showing” of technology.

This observation is one of the driving forces in obtaining the final pieces to our technology whole.

D. Solutions

Going back to the original statement of this report (In a technology enriched age, we as an educational community need to embrace that the days of fulfilling academic requirements through 2-Dimensional means are over. Chalkboards are being replaced with SmartBoards, overhead projectors by ceiling mounted projectors, tutors with the internet, and books with computers) there was mention of four basic technological means that are replacing traditional teaching methods. We as a school district have three out of the four, which is terrific. That final component would be the clinching factor in our school that would connect teachers with students, parents with teachers, community with the school. Computers are the final approach to technological achievement.

Immediate response to that statement is one of complexity. We already have computers in the school. Yes, that is true, but when the talk of technology is concerned the basis is not that you have one solitary lab. The basis is that the entire student populace is able to have technology on their desk every day.

Step one: computers for each student in each classroom with internet connectivity.

These computers that will be available to students are to be durable, portable, and non-space consuming. The laptops that are on the available market these days are at smallest ten and one tenth inches (which is about the size of a standard stock piece of paper). The size of the computer itself will allow the students to have access to their desktop area as well as the global community in the classroom. The internet connectivity can come from a variety of places. Most note able is a charging station that has a built in router system that will allow for the computers within the area to be connected to the internet and no one else.

(see Latitude 2100 in appendix)

Step two: secure software that allows the teacher to be in control of the lesson, but the student in control of optimal enrichment of the content.

“With great power comes great responsibility” – Thomas Jefferson

The computers are now a part of the classroom, but not just to get on the internet anymore. These computers for the district will be one of a kind with a software capability that allows the teacher to broadcast the content of the day for the class. This allows any student to view the content at their own speed, in front of them, able to be changed, and totally in the ever vigilant watch of the teacher. New software allows for the student to be in control of their own learning, with a moderator (the teacher) giving them content and the ability to manipulate, enhance, and enrich the content as well as their own learning. This software also allows for the teacher to get up to the minute data analysis on the students and whether or not the content is being covered fully. The final “perk” to the software is the ability for students when they are not in the room to fully access their learning materials. If a student is sick, they simply log on using their own home computer and are involved in the class without being there. The teacher can still track the student and what they are doing, but the student is not physically present at the time. This also goes for students beyond the classroom. The teacher will be able to upload the information from the day’s lessons automatically and the students can access this information via internet anytime they need it.

(see appendix application NetOp School)

Step 3: Implementing the technology into the classroom

The final step is also the hardest within any educators mind: implementing. In the simplest of ways these computers can be used for a variety of different teaching styles. From the traditional: teachers can have their lecture being on every screen, capable of finding the exact information through internet search, multimedia ran information, and finally if the students cannot access the internet at home the computers are able to be connected via Bluetooth to a printer and printed for the student (this feature also goes into Special Education of those students with disgraphia, and fine motor troubles).

To the more technologically advanced educator who will take the traditional and enhance it with: group projects ranging from a basic top-down web of the learning target that they have covered to a most promising theatrical trailer of the topic by using the built in web cam feature along with the Movie Maker software (available with all new Windows Systems) rather than a book report or basic examination.

The ultimate goal of this technology implementation is for all educators to become supreme masters of this art. These educators take the traditional and more advanced and put it on its side by not only allowing the students to have on the side projects and regular lessons involving the content. Through the use of project oriented learning, these educators supply a range of topic enriching activities, through which, the students are in charge of their own learning of the subject (after mastery of that subject has been identified of course). Through internet basis projects, group chat features allowing students to chat via internet with those in the classroom about the topic without delaying inevitable off topic conversation, and using multimedia software in order to bring the students educational vision to life. This project oriented approach encourages the barriers of education to be brought down and allow the student to develop into a global contributor of the topic grasping the very ideals of the technological standards.

(see appendix Mitchell School District)

E. Closing

In closing, I would like to thank you for allowing the idea of total technology implementation to take root within our schools. It is the hope of the technological community that this idea is taken hold of and encouraged throughout the district so that not only will the students of our

classrooms learn from the experience, but also the educators themselves will learn about the world around us through the use of “outside the box” practices.

F. Appendix