Technology Plan
For the
Public Schools
Of
Scituate, Rhode Island
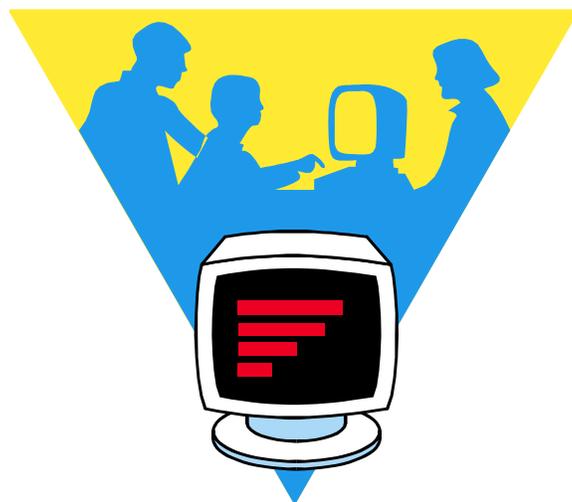
* FY 2016 _____ (SY2015/2016)
* FY 2017 _____ (SY2016/2017)
* FY 2018 _____ (SY2017/2018)

September 2015

Table of Contents

Philosophy

The purpose behind the use of technology in a school system is to better serve the curricular and learning needs of students, and to better prepare those students to become productive and contributing members of society. Technology, in and of itself, provides little of value to our students. It is not until that technology is woven into the fabric of the mission of the school that it takes on value. It must relate in a positive manner to the Vision Statement of the Scituate School System:

> *The Scituate School System provides a safe, secure environment where the importance of teaching and learning is held in high regard. Our schools reflect the best educational research and practice ensuring that all have the opportunity to become creative thinkers, problem solvers, and effective communicators. Our students are provided a strong foundation in the RI Common Core of Learning enabling them to perform at the highest standards. We are a community of life-long learners where school, home, and the community come together to accomplish our mission.*

The Scituate Public Schools support the use of technology to the extent that it contributes to that vision, and where it can be demonstrated that it increases the effectiveness and efficiency of the learning environment. The use of technology is also supported in the administration of the school system and the individual school to the extent that it makes the management and day-to-day administration more effective and efficient.

Technology is recognized as being a vital part of education, but it also one that changes at a very rapid pace and which can add a significant burden to a school department budget. The Scituate Public Schools, therefore, see the value of a constant program of research and evaluation of new products to ascertain their value and place in our schools. The necessity of some degree of standardization of platforms, software, peripherals, and infrastructure is also recognized.

New and ever-changing technologies present an on-going challenge in the area of professional development. Before any new technology can be effectively used in a classroom or laboratory setting, those in charge of instruction and supervision must understand it. The Scituate Public Schools are, therefore, committed to a continuing program of training in the appropriate utilization of hardware and software.

The setup and maintenance of technology often require skills and knowledge that are beyond that of teachers and administrators. It is understood, then, that it is necessary to maintain the services of those who do possess that expertise in order to ensure that the necessary equipment will be available as needed.

The Technology Plan

<u>Community</u>

Scituate has long enjoyed a tradition of involvement from a wide cross section of the community in many areas including its technology. In addition to teachers and administrators, there are numerous parents involved in the field of technology, including many business owners, who are willing to lend their expertise to help advance the state of the art in Scituate. The District Technology Committee is comprised of administrators, teachers and parents. It is this core that continuously works with the community to bring in expertise and resources that would be otherwise unavailable.   It is in a growing way that the community in the form of expertise donated hardware, and even monetary support for special purchases that the budget is continually supplemented.

<u>The Learning Environment</u>

Computer laboratories will be available in all schools, providing an effective and efficient method of large group instruction. The laboratory will also provide the opportunity for multiple students to complete a word processing task, to do research (locally or on the Internet), or to complete other assignments simultaneously.   Use of mobile carts allows additional group work to be done in the classroom.

On the elementary level, the goal is that there be one computer in a laboratory for each student in a class as well as 2 or more computers in the classroom depending on physical space, number of students, and grade level. There are fewer computers in a classroom for a lower grade level as compared to an upper grade level.

On the secondary level, there may be the necessity for multiple and various types of computer laboratories. These are dependent upon the needs of various departments. A general laboratory with multi-purpose equipment is available, but there might also be times when there is a need for specialized laboratories in art, business, industrial arts, and other areas.   Mobile carts allow additional group work to be done in the classroom.

On elementary and secondary levels the need for at least one computer in each individual classroom and work area has long been recognized and achieved throughout the system.   At the elementary level, grades 2 and up there are at least 2, and up to 7, computers per classroom depending on class size and physical space available in the classroom.   The need for technological assistance in the curriculum goes beyond the constraints of the time that may be assigned in the computer laboratory. Work begun in a lab may not be able to wait for the next assigned time and it is recognized that not all students have the availability of computers at home and even fewer have the same type of equipment which may be in use in the school. It is also understood that there is an ever-growing amount of software available for extension of learning activities that can be profitably used in the classroom, and that the Internet provides students with an abundance of opportunities that must be available.

In all schools, computers are networked. Technology provides the individual teacher and student with the opportunity to go beyond the boundaries and limitations of the classroom walls. A networked system allows those in a classroom to take advantage of resources which were once available only in a library. Encyclopedia and other reference materials can be accessed. Work can be shared with others in different classrooms as well as schools. Many classrooms can share costly hardware. Administration can communicate quickly and efficiently with multiple classrooms with minimal interruption. The communication can be answered in the same efficient manner.   LCD Projectors and Document Cameras have replaced the overhead projector in most classrooms allowing immediate display of papers and physical objects on a wall mounted screen. Computers also can take advantage of the LCD Projector to display anything that might be displayed on the computer monitor on a wall mounted screen for the entire class to easily view.   A number of classrooms are also using

Smart Boards and Mimio products to have interactive lessons with what is displayed on the wall mounted screen.

Schools are linked to the outside world by direct connection lines. Thre are also shared folders within and between the schools. This gives students in labs and classrooms the ability to communicate via the Internet with the world, making available research opportunities that are growing each day. E-mail gives all members of the school community the ability to 'talk' to others all over the world, sharing ideas and information.

As of this writing each building in the district is connected to the Internet as well as to each building. Users may sign into the network from any building and access their folders in the 'home' building.

Educational Goals

Scituate seeks to provide equal access of technology to all students. This is most visibly exhibited in the three elementary schools and their varied sizes, buildings and student makeup.   While we do not have a specific required target number for the ratio of students to computers, we have the following guidelines noted in the previous section. Each elementary school has an infrastructure consisting of multimedia computers hooked to the local school network, district network, and the Internet.

At the elementary level, a goal of 2 to 7 computers per classroom, depending on physical classroom size, in addition to the lab in the building has been met. Primary computer purchases in the future are the replacement of existing computers. Additional use of technology in the form of LCD projectors and Elmo type display units is being integrated.

Based on a budget figure of $400 per station and projecting current levels of funding into the future, the plan will maintain the numbers of classroom computers below. Having met goals, current lab and classroom configurations are expected to be maintained. Increases or decreases to the funding stream will affect the timing of the goal. Changes in technology will guide the direction of purchases.   Please refer to Appendix B.

Budget

The matter of budget is a difficult one. Staff salaries and benefits along with utility costs have increased (and are expected to continue) greatly each year and state support and even local support in the form of tax caps have decreased the amount of money generally available in the district. This leaves technology in the middle. Creative ways in the forms of grants, community support are always explored, eRate is utilized to help keep ever the increasing Internet needs in reasonable check.

Support Services

Moving from the pre-computerized classroom into the computerized classroom has been a giant step. Teachers need no support in how to use the traditional tools of teaching - - pencils, paper, scissors, chalk. The computer and all that goes with it are a different matter. Even those who use their own computers at home or who have used stand-alone computers in their classrooms face a very different situation when state-of-the-art, multi-media, networked computers are brought into their classrooms. Ongoing assistance on a variety of fronts is required. As the 'fleet' of computers increases in size, and necessarily age, support becomes an increasingly important function.

Hardware Selection

The types of hardware that are to be used in the Scituate Public Schools should, to a certain extent, be uniform. It is understood that there does remain a place for different types of platforms. Windows-based machines along with some Mac or Linux machines are both used for various purposes and in various places throughout the system, and this will most likely continue to be the case. These computers are used in the general classrooms, labs and administrative offices.

Thin clients (NComputing L230 and L300) and HP Stream devices are the predominant devices in use as of this writing.

There is a central "clearing" point for hardware purchases. In order to take into account compatibility issues, the Technology Director is available to those in the system who are considering purchases to assure that selections fit into the broader scheme.

The matter of grants for specific types of machines falls into its own category. When a specific grant calls for the purchase of a specific type of computer, it is not possible to follow other guidelines. In these cases, the relative merit of the grant in relation to these guidelines must be taken into account.

Technical Support

From the very beginning, a great deal of technical support will be required. The computer network is a marvelous, but very complex, creation. The installation of wiring inside of each school building has been guided by the "Scituate Network Planning Guidelines" (May 1997). This document discusses in detail the types of wiring that are available and which would be most advantageous in various situations in the Scituate Public Schools. Wiring is done under the direction of the Technology Coordinator and the Director of Buildings and Grounds.

As the network is expanded, individual pieces of hardware must be connected to the network and appropriate software installed on the network to assure that one piece of equipment communicates properly with all others. The Technology Coordinator is responsible to do this, taking into account the needs and desires of those who will be using the network. The type of administrative software, for example, which might be entirely appropriate on the elementary level, may be too restrictive for use on the secondary level.

With the network is in place, technical support is ongoing and easy to obtain. A centralized 'ticket' system helps coordinate work. Since problems often occur at the most inopportune times, methods are in place to solve all but the most difficult in a quick and efficient manner. One or more Technology Specialists are available to the elementary schools, while one or more should be available on the secondary level all on a rotating schedule. The number of specialists will, in time, depend upon the number of computer networks and terminals in place, as well as budget realities.

Computers without software are of no value. There is such a multitude and variety of software available, however, that it is almost impossible for the classroom teacher to know what is available and appropriate. Since software should complement the curriculum, there is a mechanism for reviewing and selecting software, lest hard drives and closets become cluttered with unused or little used mistakes. On an elementary building level, the Library/Media Specialists play a lead role in software selection, while on the secondary level, the LMS and Department Heads perform that function. In all cases, of course, input from the faculty is necessary and vital.

On a system wide basis, standards have been developed, particularly with respect to operating system software. Students and teachers are assured that they can travel from one computer to another or from one building to another and be able to work with documents they have created. Inconsistent programs might make this difficult or impossible.

There is consistency with regard to major word processing programs and spreadsheets that are used throughout the system. It is now possible for elementary and secondary students, all faculty, and administrative staff to share documents within the same formats. The use of USB on most systems has allowed students and staff to easily move documents between school and home.

The matter of licensing is approached on a system wide basis. Open source programs have played an increasing role throughout the district in keeping costs down and compatibility up. As we have always been mindful of copyright laws as they pertain to printed material, we must now be equally diligent of them as they apply to software. System wide licenses for operating system, word processing, and spreadsheet software are obtained for legal, as well as economic, reasons.

Professional Development

It has been well documented in those schools that have made the transition from traditional to electronic classrooms, that a major obstacle is staff development. As has been stated before in this document, computers are far different from pencils, paper, and chalk boards. They are complex devices with software requirements that are, in the beginning, difficult for the novice to understand. Once there is an understanding of the software and its complexities, there are often problems that are difficult to overcome. Finally, there is constant change in software. There are new editions, upgrades, and totally new titles that require further training. E-mail and the Internet are, for many, mysterious and foreboding. They demand explanation and training.

For these reasons, a continuing staff development program is in place under the guidance of the District Technology Committee and the District Curriculum Committee.   This staff development program is available on a system wide basis. Offerings will depend on periodic surveys of needs to staff. Staff development issues will be revisited from time to time, taking into account the turnover of faculty and staff.

Evaluation

The District Technology Committee meets several times a year. It consists of staff from various levels within the District as well as parents. It meets several times a year with the District Technology Coordinator to evaluate where we are and where we are going. It makes recommendations to the Superintendent and School Committee on issues that affect the entire district.   Staff is continuously providing feedback on technology and are also periodically asked to complete a survey on technology.

Curriculum Development

As defined by the National Council of Teachers of Mathematics, curriculum is an "operational plan" for instruction. This plan asks the following questions:

1. What do students need to know?
2. How are students to achieve the identified curricular goals?
3. What are teachers to do to help students develop their knowledge and skills?
4. What is the context in which teaching and learning occurs?

Curriculum, as developed on an on-going basis in the Scituate Public Schools, helps us to determine the first part of the plan, "What do students need to know?" Technology must be considered more and more carefully, however, in parts two through four of the plan.

Textbooks have played a less and less important role in the delivery of curriculum in the Town of Scituate. The opposite is true, though, of technology. It becomes increasingly important. The questions that must be answered in relation to curriculum and technology are:

1. How do computers and related technologies help students achieve identified curricular goals?
2. Does use of pencil and paper, the computer, hands-on experience, discussion, or a combination of each accomplish a particular goal best?

These questions, among others, must be answered when looking at each area of the overall curriculum. It must be remembered, however, that curriculum should not dictate how the technology should be used on a day by day basis. As with texts of old and trade books of today, there continues to be room for continued creativity within individual classrooms by individual students and individual teachers. The Internet has opened up possibilities that have heretofore been unknown and which beg to be explored.

Competencies

Although the use of a computer is not an end in itself, there are certain competencies that should be and are expected of our students. Among them are basic keyboarding skills, proficiency in one or more word processing and spreadsheet programs, and the ability to use the Internet to effectively search for information and to communicate with others. These skills should be introduced at an early age and students should leave the secondary school with the skills necessary for the world of today.

Scituate has developed Technology Curriculum Standards. This may be found in Appendix D.

Conclusion

There is continuing controversy over the question of whether the computer is merely a tool that will aid in the delivery of curriculum or it is a device that will revolutionize education. We believe that it is most certainly a tool that will allow our students to accomplish more in less time with better results and improved learning. We further believe, however, that the computer has the potential to revolutionize education. The avenues that are being opened are barely touched and explored. Our students, who are growing up with the computer, are in the position to utilize the technology to its fullest extent. They will be able to move from one technology to the next with an ease we cannot fathom. The goal of the Scituate Public Schools is to make this possible for all of our students. We must make equipment and time available so that those students who have no access to a computer at home have the opportunity to grow just as those who do. Notable is that Scituate will be rolling out a BYOD (Bring Your Own Device) program in which students will have access to the school WiFi network to use their own devices (computers, tablets, smartphones, etc.) to work on school projects.

This Technology Plan is not a picture of all that there is, but one of what can be and should be. It will be adjusted as time goes by to take into account new technologies, new realities, and new demands.

This plan will be implemented and monitored by the Technology Coordinator and the District Technology Committee. While any plan for the future is at best guesswork, this plan calls for the reviewing and revising the plan informally on an ongoing basis, and formally on an annual basis in the form of a report by the Technology Coordinator to the Committee.

Appendix A
Ride Checklist

NOTE: Due to declining enrollment, actual numbers are constantly being adjusted to reflect changes in individual school population and the projected numbers below are merely an estimate. For example, at this time the Clayville Elementary School has only one of each grade level. North Scituate and Hope elementary have 'rolling' dips in the population of students so that as of this writing there is only one (1) First grade at Hope this year which is expected to roll through to each grade level while North Scituate has only one (1) Second and only one (1) Fourth grade that has been rolling through the building.   As the student population changes these number will be adjusted between updates of this document.

Appendix B

Computer Acquisition – 5 Year Plan, September 2015
Please note that for the most part all Acquisitions after 2007 are on a replacement basis as all classrooms have met optimum number of computer requirements

Computer Acquisition – 5 Year Plan, updated September 2015

		2015-16			2016-17			2017-18			2018-19			2019-20			2020-21		
Students	Computers	N	T	R	N	T	R	N	T	R	N	T	R	N	T	R	N	T	R
131	48	0	34	3.85	0	34	3.85	0	34	3.85	0	34	3.85	0	34	3.85	0	34	3.85
209	81	0	56	3.73	0	56	3.73	0	56	3.73	0	56	3.73	0	56	3.73	0	56	3.73
214	108	0	58	3.69	0	58	3.69	0	58	3.69	0	58	3.69	0	58	3.69	0	58	3.69

N = New computers added
        T = Total classroom computers
        R= Ratio of students to classroom computers (lower number is better)

Appendix C , Technology Inventory

Scituate School Department Computer Distribution Plan Summer 2015

LOCATION	K	1	2	3	4	5	6	7	8	9	10	11	12	Arts	Rsrc.	Lab	Class	Total
Clayville Total	2	2	4	4	4	4	0	0	0	0	0	0	0	1	3	24		48
Ratio C:R	2	2	4	4	4	4	-	-	-	-	-	-	-	1	1.5	0		23
Room 1	2	2	4	4	4	4	-	-	-	-	-	-	-	1	2	24		47
Room 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-		1
Hope Total	2	3	6	14	14	14	0	0	0	0	0	0	0	1	3	24		81
Ratio C:R	2	3	3	7	7	7	-	-	-	-	-	-	-	1	2	0		32
Room 1	2	3	3	7	7	7	-	-	-	-	-	-	-	1	2	24		56
Room 2	-	-	3	7	7	7	-	-	-	-	-	-	-	-	1	-		25
Room 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
North Scituate[5] Total	2	4	2	14	7	14	0	0	0	0	0	0	0	8	4	58		113
Ratio C:R	2	2	2	7	7	7	-	-	-	-	-	-	-	8	4	-		39
Room 1	2	2	2	7	7	7	-	-	-	-	-	-	-	8	4	58		97
Room 2	-	2	-	7	-	7	-	-	-	-	-	-	-	-	-	-		16
Room 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
District K-5[4] Total	6	9	12	32	25	32	0	0	0	0	0	0	0	10	10	106	64	548
Middle School[1,3] Total	-	-	-	-	-	-	14	14	14	-	-	-	-	4	50	30		126
High School[2,3] Total	-	-	-	-	-	-	-	-	-	14	14	14	14	26	3	60	34	179
District K-12																		853

Notes

[1] The Middle School grades 6,7, and 8 utilize teams. One team classroom has a mini lab. The team numbers are combined here in the grade column.

[2] The High School shares classrooms amongst students in grades 9 through 12. It has minilabs located in English classrooms. The classroom number for these have been combined here in the grade 12 column.

[3] Both Middle and High School have a lab equivalent of HP Stream Laptops or Acer Netbooks

Due to multi grades using rooms, individual Classroom computers have been placed in the Class category

The E4 lab is used by the Middle School for scheduled classes and is available to all during unscheduled time.

The E3&E5 lab is used by the High School for scheduled classes and is available to all during unscheduled time.

The Library lab is available to all during unscheduled time; The D4 lab is used by both schools for scheduled classes and is available to all when unscheduled.

[4] PK and K are combined into K numbers

[5] North Scituate has purchased a lab eqivalent of HP Stream Laptops in a trial of this device in this environment

Appendix D
Technology Curriculum

The original document was approved by the Scituate School Committee.
It has been updated for changes specific technology and changes in numbers during the years.
Please contact the Scituate School Department for further information.