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How can technology be used to improve instruction and student learning?

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How Can Technology be Used to Improve Instruction and Student Learning?

By
Frank Corley

A Thesis

Submitted in partial fulfillment of the requirement of the
Master of Arts Degree
of
The Graduate School
at
Rowan University
2003

Approved by_____
Professor

Date Approved_____ *April 29, 2003*_____

Abstract

Frank Corley

How Can Technology be
Used to Improve Instruction
and Student Learning?
2003
Dr. Robert Kern
School Administration

The purpose of the study was to research techniques for integrating technology
into the curriculum in order to improve the learning of the students. This was
accomplished through analyzing material submitted by the Clearview Middle School's
teachers and through the research of the intern. Four different requests for technology
information were distributed to the teachers. Only 10% of the teachers submitted material
for the handbook. The limited amount of information received after the requests resulted
in a technology questionnaire that was used to define the teacher's technology aptitudes
and determine how technology was being utilized in the school. The results of the
questionnaire outlined the need for increased technology training and activities that
required higher-level thinking skills. The result of this project was a 27-page technology
handbook that included activities such as WebQuests, multimedia presentations, teaching
simulations and virtual tours. These items were activities that teachers wanted to include
into the curriculum, based on research from the technology questionnaire. The
technology handbook will be distributed to each staff member in September of 2003 to
increase the district's literature on effective uses of technology.

Mini-Abstract

Frank Corley   How Can Technology be
                                         Used to Improve Instruction
                                         and Student Learning?
                                         2003
                                         Dr. Robert Kern
                                         School Administration

The lack of technology training in Clearview Middle resulted in the design of a

technology handbook. This was constructed to provide staff members with appropriate

uses of technology in the classroom. The results of the study validated the need for

increased teacher training to meet the needs of the students.

Acknowledgements

The completion of this thesis has been a tedious but rewarding process. I would first like to thank my wife, Kristin, for her undivided love and support throughout the quest to attain my educational goals. She has been extremely supportive and understanding of the entire internship process. I appreciate all the sacrifices she has made in our first few months of marriage. I now look forward to spending time with the woman I love.

I would next like to thank my parents, Frank and Carol, for always encouraging the value of education in my life. Their continual guidance and support throughout my school years have shaped and molded the person who I am today. I know that the accomplishment of this endeavor has made them extremely proud. I love you both.

I would also like to thank my brother, Nick, for providing the constant laughs and support that has enabled me to get through the tough times and moments of despair. His uncompromising friendship has led to my constant pursuit of goals. God could not have blessed me with a better brother.

I would also like to thank my loyal friends, Dr. Douglas Lynch and Dr. John Figurelli. Their desire and determination to pursue their medical degrees has showed me the value of hard work and relentless pursuit of achieving career goals.

An extended thanks goes to the administration and staff at Clearview Middle School. Their help and support in gaining the data required for this project is deeply appreciated.

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Dear Clearview Middle School Staff Members,

This handbook is compromised from information obtained by teachers for teachers. The technology revolution has maximized the amount and types of information teachers can use to enhance their teaching. The information contained in this handbook will offer innovative teaching ideas and new methods of instruction. It will transform your classroom from the ordinary to the extraordinary.

Frank Corley – Theresa Triola – Bob Bennette

A special thank you to all the teachers who contributed information for this handbook.

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Chapter 1

Introduction

Focus of the Study

The focus of the study was to research techniques for integrating technology into the curriculum in order to improve the learning of the students. A main curricular concern of education today is the integration of technology into the classroom. With the information age transforming our schools, it is imperative that students learn how to use technology and view it as an effective tool to enhance their learning experience. Teachers do not always possess the skills or resources to help them integrate technology into the classroom in a way that meets the needs of the learners. A multitude of information can be found on the Internet; however, to the inexperienced, improperly trained teacher the web-searching journey can seem like looking for the lost grain of sand on the beach.

Various sites and references were researched to formulate a list of resources. This list was critiqued and examined to determine its usefulness in meeting the demand of the teachers and needs of the students. Research was also accomplished using current literature as well as material submitted by the Clearview Regional School District's staff. The result of the research and data collection was a technology handbook. This was distributed to the entire staff of Clearview Regional Middle School to help incorporate technology into the curriculum. This was also used as a publication medium for other school districts.

Purpose of the Study

   The purpose of this study was to research, using a case study design, techniques

for integrating technology into the classroom. The information was gathered from current

literature and through items submitted by the Clearview Regional School District staff.

The study resulted in a technology handbook outlining the various ways technology could

be integrated into the curriculum. The information was organized into subject themes for

easy accessibility. The finalized handbook was distributed to the entire Clearview

Regional Middle School staff. The handbook outlined how technology can be utilized in

the classroom to improve the learning of students. This endeavor correlated with Goals

2000 legislation that set national educational goals and put forth challenging expectations

for students, in addition to high-quality educational opportunities to meet those

expectations. In addition, the New Jersey Core Content Standards mandated the addition

of technology across the curriculum.

Definitions

Access – a way to open the Internet in order to browse for information, send e-mail, view
Web sites, or retrieve data

Address – as pertaining to the Internet, the location of where information is stored
identified through a series of letters, numbers or symbols

Archive – a place on the Internet where files are stored

Audio – pertaining to audible sound the can be heard

Back button – a button at the top of a web browser that enables you to go back to the
previous web page

Bookmark – a direct link for a web site that can be accessed in your web browser for easy
access through a single mouse without having to type in the entire address

Browser – a program used to access the Internet that enables you to download, upload, or

access information in the Internet

Bullet – a dot or series of dots used to list information or separate items

Chat Room – an Internet Web site used for online conversation

Computer – a technology device used to store information, run programs and access the Internet

Data – information that can be accessed

Desktop – the information that can be viewed on your computer screen

Directory – a list of table of contents for information

Document – a certain file that can be stored on a computer

Download – to transfer files from either computer to computer or from the Internet to a computer

E-learning – the act of learning online

E-mail – a way of sending mail or messages electronically through the Internet as opposed to through the ordinary mail service

File – data that is stored on a computer

Floppy disk – a way to store data that can be accessed on a plastic disk from a computer

Graphic – a picture or image that can be seen on a computer

Homepage – the opening page of a Web site and usually the starting point for navigation through the Web site

Hyperlink – either a text or graphic on the Internet that when clicked upon with the mouse can take you to another part of the current Web page or another Web page

Image – a picture

Information age – the time period in history when computers became an integral part of the working environment

Internet – a network that links computers and allows for the retrieval of information, sharing of data, e-mail, transfers, and other network capabilities

Keyboard – a device connected to a computer used to input information

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Link – a type of technology that connects Web pages for easier accessibility

Mailbox – a storage medium on you computer that holds your e-mail messages

Menu – a list of items on a computer screen that you can select from for ease of access

Mouse – a device connected to a computer used to scroll and click on information from the computer screen

Navigate – the act of traveling through the Internet from one site or Web page to another
Online – the act of being connected to the Internet

Paradigm shift – a change or belief in doing something

Password – a combination of letters, numbers or symbols required to access a computer, computer site or specific program used to keep unauthorized users from entering

Printer – a computer device that allows you to print information on paper

Run – the act of beginning a computer program

Screen – the area on a computer monitor that displays the information

Search – the act of locating information on the Internet

Search engine – a Web site that enables a search for information on the Internet

Site – a distinct place on the Internet

Software – computer programs or applications that enables you to use the computer (example is Microsoft Word used for typing)

Toolbar – a set of buttons for computer applications used for easy access to routine functions

User – refers to anyone that is using a computer

Web Site – a place on the World Wide Web that contains files, documents, graphics or other materials for viewing

World Wide Web – a collection of material on the Internet that can be accessed through a computer

Limitation of the Study

Limitations of the study resulted from the technique used for data collection. The intern requested data from the Clearview Middle School staff. A major problem resulted from the district's lack of technology training. With the exception of technology used for the current grading and attendance programs, the Clearview staff did not have extensive training on the incorporation of technology into the curriculum. This lack of training had a negative impact the amount of data collected.

Additionally, staff members were reluctant to submit data due to the effort involved. Not all teachers are willing to complete work that was not mandated by the school. This voluntary request for data negatively impacted the amount of data received.

Setting of the Study

The internship took place at Clearview Middle School, located in Mullica Hill, New Jersey. It is approximately 18 miles Southeast from Philadelphia, Pennsylvania. Located in the township of Harrison, Mullica Hill borders the municipalities of the Boro of Glassboro, East Greenwich Township, Elk Township, Mantua Township, South Harrison Township, and Woolwich Township. A population surge has resulted in substantial population growth within the past five to ten years. Once a rural farm town, the community has become a lucrative haven for homeowners desiring to live in an area with a highly acclaimed school district. Many developers have purchased farms and converted the land into new homes. The signs on new developments list starting prices beginning in the low $400,000 range.

The Clearview Regional School District is made up of two buildings that include

the middle school (grades seven and eight) and the high school (grades nine through twelve). The middle school was built in 1968 in response to increased enrollment in the existing high school. The student population in the district is 1,920, with a 2002-2003 projected total of 2023. Students in the Clearview Regional High School District live in either Harrison or Mantua Townships. Harrison Township currently has two elementary schools, while Mantua Township has three.

According to the 2000 reports from the New Jersey Department of Labor the unemployment rate for Harrison and Mantua Townships are 2.7% and 2.4% respectively. The entire school district population has grown by over 7,000 people from the years of 1992 through 2000 and the student population has increased by 800 during those years. There has even been a greater rate of expansion within the past two years due to continuous building of new developments where farms and vacant land once were.

The predominate socioeconomic status within the district is middle class. The major occupations include executives, professionals, skilled laborers and farmers. The median family income, according to 1998 reports, was approximately $51,000. Ninety-eight percent of the student population is Caucasian, while two percent make up the following ethnic groups: African Americans, Hispanics, American Indians and Asians.

There were 153 faculty members employed in the Clearview Regional High School District. According to the 2001 district reports, 69% of the staff had a bachelor's degree, 27% held a master's degree and 4% had earned their doctoral degree. The median salary for administrators in the district, according to New Jersey School Report for 2001, was $91,348 as compared to state median of $82,687. In addition, the median salary for teachers was $43,980 as compared with the state median of $53,621. The total

comparative cost per pupil was $9,998, as compared with the state average of $11,335.

Clearview's budget history had been quite successful throughout the past twelve years. There had been only one failed budget during that time period: the 2002 budget encountered a roadblock due to the financial crisis in the New Jersey government. While the district enrollment had increased by approximately 100 students, state funding remained flat and without any increases for the 2001-2002 school year. Ordinarily, the increased enrollment would have generated approximately $750,000 in state aid. Without the money, a tax increase of approximately nine cents per $100 of assessed value in both Mantua and Harrison townships were made to continue the excellent educational opportunities for all students in the district.

Organization of the Study

The remainder of the study will be organized as follows:

Chapter Two:	Review of Literature	
	Three:	Design of the Study
	Four:	Presentation of Research Findings
	Five:	Conclusions, Implications and Further Study
	References	
	Appendix	

Chapter 2

Review of Literature

The technology revolution in our schools has improved educational opportunities for the teachers and students. Many new and exciting developments in technology have made it possible for such projects as virtual museum tours, multimedia presentations, advanced web searches, and intricate design frameworks. Although there were many new and exciting projects to improve the existing curriculums, many teachers were not educated in the new technological advancements and are overwhelmed with the levels of technology that can be used in the classroom (Bozeman, 1999). It was difficult to inform and educate each and every teacher with the already demanding schedules and in-services that are rudimentary procedures in most schools. How is it then possible to inform teachers of the types of technology available to them and train them at the same time? Each and every year more advanced levels of technology are becoming available and some teachers' feel completely inundated with material (Penuel, Means & Simkins 2000). How can schools incorporate technology into the classroom effectively? How can teacher training be improved? How can technology be aligned with the current curricular frameworks to enhance subject content matter? How can we keep teachers up-to-date on the new technologies that are available to them? These questions pose the problems and dilemmas that schools must conquer in order to properly advance with the technology revolution that has engrossed our culture. Teachers must be made a part of this paradigm shift so that students are prepared to meet the needs of the workforce and world in which we now live (Brogan, 2000).

The term school has been redefined in our current and future societies. "In the past a 'school' was generally defined as a building. In the 21ˢᵗ century, schools will become nerve centers, with walls that re porous and transparent connecting teachers, students and the community to the wealth of knowledge that exists in the world. Schools in the 21ˢᵗ century will not be confined by their walls but will be encompassing of the entire community and the world. They will truly be learning communities, and to be effective in preparing students for life in a democracy, the schools themselves will need to operate democratically" (Marx, Long and Withrow, 2002).

Schools will become digital hubs that will be open electronically 365-days-a-year. The 21ˢᵗ century will be known as the knowledge information based on a culture of inquiry. "Teachers must be the brightest and best society has to offer; they must be well prepared for what they teach; they must believe in themselves and their contributions to children and society; yet, they must be constantly committed to improving, no matter how good they are" (Marx, Long and Withrow, 2002).

In the year 1900 the average 19-year-old had not traveled more than 50 miles from his or her birthplace. As we enter the 21ˢᵗ century, with jet travel and digital communications, the average teen-ager can contact people anywhere in the world instantly. "Kids often have more technology in their bedrooms than they do in their classrooms. Schools systems will continue to make technology an integral learning tool, get their schools connected to electronic networks, deal with equal access to technology, use it to improve effectiveness and efficiency and make sure teachers are capable of using it effectively" (Marx, Long and Withrow, 2002).

The element of planning is often a forgotten step in the overwhelming process of

incorporating technology into the classroom (Rose, Meyer, Strangman & Rappolt, 2002). The following is a scenario that is all too often familiar for schools today: You are a principal and have received a memorandum from the state that your school has received a grant that will wire the entire school for the Internet. In the same scenario, you are a teacher and have just received word that you will now have a computer, with Internet capabilities, placed into your classroom. In addition there has also been word that you now have access to a computer lab with thirty computers connected to the Internet. Like most administrators and teachers, you probably have been awaiting the arrival of technology in your school for some time. Now that you have access to these new forms of technology, how are you going to use them? What are some ways you can integrate technology into your daily lesson plans and other classroom activities?

We often ask students to create mnemonic devices to help them remember key facts or other important ideas. Using the LOCATE model can be a helpful way of determining how to use technology in the classroom (ASCD, 2000).

Learners. The most important factor to consider. How can the incorporation of technology improve the learning of the students?

Outcomes. It's important to know what you want students to learn. What is it that I want the students to learn? How will technology help them to learn it?

Compare. What can different technologies bring to your class? Are the materials selected suitable for the learning outcomes and the students? Is the technology easy to use? How much instruction is necessary to properly use the types of technology selected?

Assembly. Choose your resources and put them together. Make sure that the students

can access the technology in as easy fashion.

Trial. Take time to preview your selections. Always preview the technology before students use it. As your students work with the technology observe their reactions and engagement in the activity.

Evaluate. Did the technology enhance your teaching and student learning? Document any problems so that the activity may be improved in the future.

(ASCD, 2000)

This model offers a clear and concise outline for technology development and usage. It systematically analyzes the elements necessary to properly incorporate technology into a school or classroom. At first the learners are evaluated to see what effect technology will have on their progress. This fundamental step ensures that technology complies with the curriculum and standards that solidifies its usage. For many of classrooms today, this initial step would most certainly eliminate their preliminary justification for technology usage.

The second step of outcomes leads to what the students will learn from the activity. This step is quite important. The goal of technology is to present new ways of learning that offers an improvement over the normal classroom setting. The incorporation of technology should offer a curricular improvement to the lesson. This step eliminates the routine procedures of typing research papers, random Internet searches or the usual games to occupy lag time in classes. The goal of technology in the classroom must be to improve the classroom setting by using the best resources to extend students learning. If the incorporation of technology does not better the lesson or substantiate an improved learning experience for the students then its validity should be critiqued (Warhaftig,

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2002).

The next step is to compare what types of technology are available for the lesson. This is a step that teachers usually disregard. Most schools have people designated for technical support, teachers skilled in technology or resources available to guide them with the incorporation of technology in the classroom. Many teachers are not aware of the multitude of ways technology can be incorporated in their lesson plans to heighten the learning experiences of the students (Bozeman & Hiatt, 1999). Without the proper in-services or technology training, many teachers do not know the types of experiences that technology can add to the classroom. It is imperative that teachers be trained or use other teachers and/or resources to help them improve the way they use technology. By following these guidelines students may experience a heightened learning experience in the classroom (ASCD, 2000).

Another step in the LOCATE sequence is assembly of the materials. This incorporates the elements of assembly to properly analyze not only the types of technology available but also how the students can be assembled. This step is an integral part of the planning process. Certain attributes covered in this step include where the technology is going to be used, how the students are to be seated and what aspects of the lesson are infused with technology. For many schools the computer lab or media center are the only areas where technology can be accessed. In some schools mobile laptop workstations are used to bring the computers to the classroom. Regardless of the location, the arrangement of students sets the tone to whether or not the lesson will achieve its goals. If new concepts are being taught to a large class of students, it may be beneficial to create small work groups so those students may work together. Other lessons may call for

students to work individually on their assignments emphasizing a structure suitable for teacher monitoring. When using technology it is imperative to consider the audience in the planning process.

A step that is all too often forgotten is the element of trial. Far too many times teachers are reluctant to use technology because of the horror stories heard from other teachers. Simple problems such as students forgetting their passwords to computers damaged or not working properly can cause lessons to be destroyed. It is important for teachers to practice using the technology before implementing it in class. Speaking to other staff members who have done similar projects can eliminate some of the roadblocks that appeared in prior classes. Also, speaking to the technology liaison can also help you make sure the lesson goes smooth and without specific problems. Another concept is to poll students in your class on their experience with certain programs and functions you wish to implement in the upcoming lesson. Students are sometimes quite knowledgeable with computers and can be used as a means of technical support in class or a teacher helper. Empowering students can also lead to a more cooperative atmosphere that can eliminate problems and anxieties from students and teachers.

The last part of the LOCATE model is evaluation. The best way to validate the effectiveness of a lesson is to evaluate each step and determine if anything could have been done differently to make it better. There is no better way to do this than to journal the experience for future endeavors (ASCD, 2002). Too many teachers carry out a lesson and never make any changes to improve its effectiveness. In order to maximize the learning of the students the evaluation part of the process must be an integral component. Evaluating the lesson could occur during the first class that the lesson is being taught.

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Making mental notes of the problems or concerns can lead to a better second class. By the end of the last class the lesson may have taken on a new meaning. It is important to record the improvements for future reference. This evaluation measure ultimately leads to the reflection of whether or not the technology enhanced the learning of the students. If students only achieved minimal results from the technology it may be necessary to consult other teachers or technology liaisons to evaluate the lesson for the purpose of making improvements. Rarely are people experts the first time they try new things. Just as in sports, games, or life practice makes perfect. A student in medical school does not become a doctor after his/her first class. Teachers need to realize that the incorporation of technology is a learning process that takes time to master. Through consistent trials, improvements are made which eventually leads to enhanced students learning – the measure by which we should be evaluating ourselves.

Incorporating technology must be a well thought venture to ensure that it coincides with the curriculum, meets the needs of the students and improves the degree of learning in the classroom. Using technology solely to occupy down time or as an means of entertainment for students who have completed their work early does not fit the mold of the LOCATE model and does improve student learning. Time must be taken to substantiate how the incorporation of technology in the lesson of classroom improves student learning. By following the steps to this model, technology can be a viable addition to the classroom.

Administrators and school leaders are under increased public pressure to improve student achievement. "Standards, assessment and accountability measures are in place in school districts across the nation – and the recent sweeping reauthorization of the

Elementary and Secondary Education Act promises to 'leave no child behind'" (NSBF,

2002). Still, schools today are not using technology effectively to meet the needs of the

students. The tables that appear in this section are based on the telephone interviews with

Table 1

How do district teachers use the Internet for instructional purposes	Percentage of respondents
Internet searches	74%
Teacher research	72%
Lesson planning	38%
Demonstrations, presentations	18%
Utilizing Internet services	10%
Student projects	8%
Student research	7%
E-mail	5%
Videoconferencing	5%
Class Web pages	4%
Student information services	3%
Other (distance learning, desktop publishing)	5%

Note. From "Are we there yet? Research and guidelines on schools' use of the Internet,"

by The National School Boards Foundation, 2002

technology decision makers in 811 school districts, including 90 of the largest 100 districts in the country (more than 25,000 students), 398 medium sized districts (2,500 to 24,999 students), and 323 small districts (up to 2,499 students). Table 1 demonstrates to what extent the Internet is used for instructional purposes.

The preceding table solidifies the justification for improved teacher training. One can deduce that the majority of time spent on the Internet is solely for research. This type of endeavor is the replacement for the card catalogs and libraries of books from the past. Although the format for obtaining research has changed, the educational advancements have not. Teachers must be made aware of the many other uses for the Internet for classroom teaching and student learning. It seems wasteful to pay exorbitant amounts of money for technology for the sole purpose of improved research. Increased teacher training must be part of the education process. The Internet has a multitude of other uses that are not being tapped into because teachers are unaware of the recent advancements.

How can schools improve the education of the students? It is paramount to begin educating teachers as to how they can effectively use technology in the classroom. Despite the recent progress, it is "not enough to install computers and wire schools and classrooms for Internet access…The focus needs to expand on how schools are using technology" (NSBF, 2002). "Integrating technology into both curriculum and instruction needs to be a higher priority. It's too often an add-on, separate-from the curriculum, or it's even used as a toy, for games. It needs to be used effectively as an instructional tool; understanding technology concepts and uses, and using technology skills, needs (sic) to be integrated with the curriculum" (Buttram, 1997).

A vital component for successful technology integration is the need for constant

teacher training and in-services to help them incorporate different forms of technology in their classes. It cannot be assumed that veteran teachers are the only group that requires technology training. As demonstrated in Table 2, new teachers are also in need of support and training when it comes to technology. Schools cannot assume that new teachers have received the necessary technology training to use in the changing classrooms of the future. "While our nation's schools have done a masterful job of preparing students for an industrial age, we are moving at warp speed into a whole new era. The future of our nation and world depend on the ability of our education system to lead and to adapt as we prepare our students for the future" (Long, Winthrow & Marx, 2002). Because technology advancements are occurring at such a phenomenal pace, it is important to educate and train all staff members as to how they can effectively use technology in the classroom to improve the learning of the students.

Another important point to consider is whether or not students are provided the training to be able to understand the types of activities that teachers use in the classroom. With the transient rates among students and families in today's society, everyone is not always at the same level of technology awareness. It is important to poll and review both students and teachers on the level of technology training in order to maximize the success of technology in the classroom. The evaluation of technology competencies for all new teachers and students should be completed on a yearly basis to constantly evaluate the needs of the district. This proactive method of evaluation should be used to schedule teacher workshops and student classes. Table 3 demonstrates the percentage of districts that offer technology training to students.

Table 2

Rate the new teachers in skills and knowledge necessary to integrate the Internet into instruction	Percentage of respondents		
	Large Districts	Medium Districts	Small Districts
Novice	36%	25%	24%
Average	43%	42%	40%
Above Average/Expert	18%	31%	35%

Note. From "Are we there yet? Research and guidelines on schools' use of the Internet,"

by The National School Boards Foundation, 2002

Table 3

Does your district provide students formal technology training	Percentage of respondents
Yes	48%
No	35%
Unsure	17%

Note. From "Are we there yet? Research and guidelines on schools' use of the Internet,"

by The National School Boards Foundation, 2002

In addition to the inequalities among teachers and students as to their technology awareness, there are also inequalities in subject content areas. In the same study performed by National School Board Foundation, various subjects were polled as to their use of technology. Interestingly enough, there is a wide disparity among subject content areas. This is extremely important to schools to ensure that the students receive the education to prepare them for the future. It is quite ironic how the subjects of Business, Health, Technical Studies and Mathematics rarely use technology in the classroom. One might wonder how the students would be prepared to excel in these technology-driven fields of today if they are not educated on the latest methods. Table 4 identifies the subjects that use the Internet the most, according to studies completed by the National School Boards Foundation.

Table 4

What have you found to be the two most widely used subjects for instructional uses of the Internet?	Percentage of respondents
Social Studies/History	76%
Science	58%
Language Arts	37%
Math	13%
Technical	4%
Foreign Language	4%

Arts	4%
Business	4%
Health	3%
Other (library, general, current events)	3%

Note. From "Are we there yet? Research and guidelines on schools' use of the Internet," by The National School Boards Foundation, 2002

When it comes to new information, it is quite easy to disenfranchise teachers as to the benefits of technology if initial shortfalls are experienced. It is important to train teachers in the most rudimentary procedures in order to maximize initial success and increase their level of comfort. Through consistent progress, teachers may be able to grasp the necessary components that will offer students the types of experiences that will prepare them for the future. Teacher training must be a continual process in order to stay current with the current trends and technology advancements. The role of a teacher in the 21st century has completely evolved into a new type of individual. No longer can teachers be effective with the same lesson plans that they have used for the past twenty-five years. In addition, the style of teaching shouldn't change with the purchasing of a new textbook. It is the school's obligation to provide and the teacher's obligation to learn the necessary skills that will prepare students for the "real world."

It is stated that "Educators will witness greater success with technology if they begin their planning with a set of assumptions – what we refer to as the 'five Cs'" (Polka, Mattai and Perry, 2000). These views are based from the theories of Abraham Maslow, William Glasser, Warren Bennis and Max DePree. Maslow contests that people need

influence from positive daily experiences and decisions in order to succeed and experience success. Technology will not be totally embraced by people if they are stressed out while trying to reach the demands required. There are five different needs that teachers must experience to attain greater success with technology.

1. "Control: Individuals must feel personally in control of technological changes in order to use them in a satisfying and productive fashion.

2. Creativity: Individuals must possess a creative sense that enables them to construct and reconstruct uses of new technology in a unique manner.

3. Caring: Individuals must possess the sense they are respected and personally noticed in order to confront the impact of technological change in a positive manner.

4. Challenge: The individual must possess a sense of challenge toward technological change.

5. Commitment: The individual must possess a strong sense of personal commitment toward technological change and to the organization to enjoy the change process and be productive."

(Polka, Mattai and Perry, 2000)

The initial success of teachers has a tremendous impact on how technology will be received in a district. Priming teachers for success, understanding and comfort allows them to have a much more positive attitude towards technology incorporation in their class. Through frequent in-services and teacher training, the inclusion of technology in a district becomes a work in progress. Having teachers on board and optimistic towards the

technology revolution substantiates a successful program. Ultimately the success of the teachers leads to successful lessons in the classroom. This type of program will allow teachers to provide students with the technology that prepares them for success in the future.

Although many parents, schools and members of society believe that technology is going to have a positive effect on children, others have real disdain for this these new advancements. "Educators may be pillars of the community, but their discourse is as mercurial as Paris fashion. Desperate to find a magic bullet to cure education's woes, many are willing to embrace new curricula and unproven pedagogies, believing that anything different must necessarily be good. Educators' current fascination with technology is a vivid example" (Warhaftig, 2002). Technology advocates envision an anytime, anyplace learning adapted to meet the needs of every student. Colleges and universities are adapting on-line courses to create the grand notion of cyber schools. Before society rushes headfirst into these new ways of learning, educators must research whether this online instruction offers the same type of education as traditional schools. "Education is a human enterprise, and while revelations certainly occur while walking on a beach or sitting at a computer, the bulk of academic understanding is best acquired in a classroom – in a community of fellow learners. Students also learn essential life skills in a classroom, including how to interpret meaning, - not just in worlds, but also in voices, eyes and body language" (Warhaftig, 2002). The sudden inclusion of these new forms of education is without meaningful research or studies. What college or university student would rather follow the order of operations in traveling to class (get dressed, bring out the umbrella if it is raining, clear your car if it is snowing, drive an half an hour to class, find

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a parking spot, walk to class, sit in class for a few hours, walk to car, drive a half an hour home) than pulling up a seat and jumping online in the comfort of their own home. Do they have the same kind of social interaction in front of the computer? Can the auditory learner understand the lessons online? Can the tactile/kinesthetic learner have the same type of group experiences with a mouse and keyboard? Can the value of being surrounded by humans that share experiences and laugh together be replaced? To what degree is learning improved? These questions must be answered in order to substantiate the value of increased technology.

"Technology is not a panacea to education's problems, through some would like to see it that way. High-tech products, no matter how advanced, do not have the same educational weight as good teachers, small classes, and a challenging curriculum" (Tell, 2000). Although the majority of individuals believe that the technology revolution is improving the education in our schools, there are still many who pose good arguments on its unworthy hype. One of the main culprits is the "political pressures to toss computers into classrooms and to get Internet connections before people even know what to do with them. A recent study showed that a huge proportion – somewhere around 90 percent – of high school teachers claim that their students are using computers, but students are actually using them only for word processing. They are doing work on a costly Pentium processor that could be done with an electric typewriter" (Tell, 2000). This type of technology use is overwhelming schools. Teachers will continue to have students just type on computers unless they are trained as to its many uses. One of the main problems is that schools are so concerned with having computers that the proper training and support does not gain the attention that it requires.

A prime example is the following scenario of incorporating technology without having a concrete support system in place. "Launched in 1996, ZapMe of San Ramon, Calif. wanted to give away free computer equipment and access to U.S. schools. The hitch was that banner advertising would support the equipment and access, a concept frowned upon by educators. Still, ZapMe launched two successful pilot schools in 1998. By the end of the third quarter of 2000, ZapMe had wired 2,300 schools in 45 states, providing approximately 2 million students with Internet access" (McKenzie, 2001). This project, in addition to the countless computers donated through grants and donations by such companies as Gateway, Dell, Compaq and Microsoft, are placing many forms of technology in schools. Unfortunately districts are not mandating the proper in-services or teacher training to educate them on their many uses.

"The rush to bring technology to education is motivated more by commerce then evidence of human value. Human beings were learning for many millennia before computers and the Internet, and it would be shortsighted to abandon the wealth of experience in favor of the unproven potential of a combination of technologies that has been available to schools for only about five years" (Warhaftig, 2002). This costly experiment could be a colossal failure if the newly implemented programs result in educational setbacks. In today's society, schools are rushing to purchase the newest types of technology. It is important for many communities and school systems to "keep up with the Jones." This age-old ideology is more becoming more important than improving the education of the students. Parents are lobbying for students to have the most current types of technology available in their schools. The item left out of this equation seems to be professional development of the teachers so they may use the technology correctly and

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effectively. The terms correctly and effectively cannot be someone affiliated with the technology industry. "But if we are good educators, we make an effort to understand our own curriculum, what our students need, and what is working to help them. Schools need to ask, What can we do with this technology in terms of curriculum and learning that we can't do as efficiently by beefing up other more proven methods? This technology is expensive in every respect, including adequate tech support to keep it up and running so that instructional time isn't wasted" (Tell, 2000).

As multimedia technologies have become more accessible for schools, teachers have constructed extensive projects with museums and historical organizations to bring the museum to the school. Schools, like three third grade classes from Belmont, California, have put the history of the town of Belmont online themselves (Penuel, 2000). This type of project offers the synthesizing, analyzing, researching, and collaborative skills the are necessary elements in technology incorporation. Projects, such as this, require a tremendous amount of time and effort from teachers and students. Many teachers lack the confidence and training to incorporate this type of technology. In addition, they also have trouble gaining access to enough computers and other equipment for their students. "Or they lack the technical support to troubleshoot computer problems or to learn the multimedia tools that their students will use. They lack time within the school day to collaborate with other teachers, much less with outside experts like museum curators and local residents" (Penuel, 2000). Teachers, administrators, parents and students alike must understand that all worthwhile endeavors take time. This Belmont program was the result of a five-year endeavor through a federally funded Technology Innovation Challenge Grant called the Challenge 2000 Multimedia Project. Schools across the nation should

use the Belmont program as a framework for technology incorporation. Effective programs and technology development cannot happen overnight. Schools must put in the time and effort needed to use technology properly and effectively. The inordinate costs of technology incorporation must lead to improved learning for the students. Otherwise this costly venture will prove to be nothing more than another educational farce.

What types of technology are currently being used in schools today that do not offer improved learning experiences that those of the past? What organizations are creating the widely used technology programs in school? Do they offer sound educational premises and learning experiences? One of "the underlying justification(s) for technology in schools is that mastery is necessary for students to succeed in the workplace. This vocational approach to education conflicts with the traditional vision of nurturing well-rounded individuals with knowledge of nature, geography, history, mathematics and culture" (Warhaftig, 2002). One specific application is the overused Microsoft PowerPoint program. This program is widely used in the business world. Television commercials and advertisements use business PowerPoint presentations to emphasize a well-thought presentation with added sights, sounds, whistles, bells, text motions and vivid colors. Schools try to emulate the business world and use this program ad nausea. "When you first see a 5th grader give an oral report using PowerPoint, you're bound to be stunned. It looks great. It is unbelievable. How can this child be so smart? But PowerPoint is not really that difficult to use. How much thinking did the youngster actually put into this report? Many teachers say that all of their grading standards are suddenly out the window because they can get a beautiful, neat report with all kinds of good content. But, in fact, the student has done nothing but cut and paste" (Tell, 2000). A

student actually would use more tactile and synthesizing skills cutting and pasting material out of magazines than repeatedly clicking a mouse and placing material in an almost pre-constructed document. To the technology novice sometimes the extraordinary is actually nothing more than ordinary. Schools need to research the programs and technology uses to ensure that they are improving the learning experiences of the student.

There has been research on the positive effects of technology in schools and improved academic achievement. Many teachers have been proponents of the use of technology. "In a poll taken early last year U.S. teachers ranked computer skills and media technology as more 'essential' then the study of European history, biology, chemistry, and physics; than dealing with social problems such as drugs and family breakdown; than learning practical jobs skills; and than reading modern American writers such as Steinbeck and Hemingway or classic ones such as Plato and Shakespeare" (Oppenheimer, 1997). Are the computer and technological skills more important than creating the well-rounded child? What people are changing the educational ideologies of the past in favor of these new computer competencies? With such contrasting views on the topic of technology, shouldn't schools invest more in researching effective technology techniques before committing to increased spending? These questions must be answered before more money on technology is spent. Schools must rationalize their decisions to this change in educational philosophies and document how it offers improvements to the existing curriculums that it is abolishing.

"In keeping with these views New Jersey cut state aid to a number of school districts this past year and then spent $10 million on classroom computers. In Union City, California, a single school district is spending $27 million to buy new gear for a mere

eleven schools. The Kittridge Street Elementary School, in Los Angeles, killed its music

program last year to hire a technology coordinator; in Mansfield, Massachusetts,

administrators dropped proposed teaching positions in art, music, and physical education,

and then spent $333,000 on computers; in one Virginia school the art room was turned

into a computer laboratory. (Ironically, a half dozen preliminary studies recently

suggested that music and art classes may build the physical size of a child's brain, and its

power for subjects such as language, math, science, and engineering – in one case for

more than computer work did.) Meanwhile, months after a New Technology High School

opened in Napa, California, where computers sit on every student's desk and all

academic classes use computers, some students were complaining of headaches, sore

eyes, and wrist pain" (Oppenheimer, 1997). Schools have dismissed the negative research

on increased technology usage. The overwhelming societal concern to flood schools with

computers is taking precedence over any negative concerns. What effect will these new

philosophies have on the future of the educational system?

"Prudence also requires research – prior to broad implementation – into potential

adverse effects of computer use by children. Does computer use damage children's

vision? Does it limit motor development, socialization, attention span, or the ability to

conceptualize the real world? Does it promote a sedentary lifestyle, obesity, and related

diseases, including diabetes?" (Warhaftig, 2002). Countless reports have documented

how computers are contributing to serious health concerns with children. The children of

today are sitting in front of the computer for hours playing computer games after school,

instead of playing outside and socializing like children have done in the past. This has

contributed to overwhelming accounts of childhood obesity and has promoted a sedentary

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lifestyle. According to reports by the University of Michigan, more than a quarter of children aged six to eleven are obese. Among kids aged twelve to seventeen, twenty five percent of girls and eighteen percent of boys are obese. This is becoming so common among children that studies have classified it as an epidemic. Various studies have documented that dramatic rise in obesity throughout the past few decades in this country. The number of overweight children aged six through seventeen has doubled in the last thirty years (Boyse, 2002).

"Educators should keep in mind Henry David Thoreau's caution in Walden: 'What everybody echoes or in silence passes by as true today may turn out to be falsehood tomorrow, mere smoke of opinion, which some had trusted as a cloud that would sprinkle fertilizing rain on their fields" (Warhaftig, 2002). Schools and educators must rationalize the importance of incorporating technology in the classroom without compromising the core values and criteria that has built the educational system in this country. "Technology cannot take the place of vision, talent, or skills, whether developed or inherited. We will always need to tell a story…and tell it with honesty, depth, and detail…For this reason, teacher will become more important as technology increases in power. More than ever, students will need teachers for their wisdom and knowledge to help navigate a purposeful path though the glitz and distraction" (Ohler, 2000). The decisions schools make today can help or adversely affect children. It is imperative that technology usage be based on current research, sound principals and take into consideration the basis for which education began. Is it school's role to prepare school children for a specific job or to offer them a well-rounded education? These concerns must be answered before schools change their fundamental purpose in favor of transforming every student into a technology

specialist.

The technology age of today has afforded schools the opportunity to offer the best possible education to students. Many new and useful advancements have been created to educate students with disabilities in the regular education classroom through the use of technology-based tools and equipment. Although many assume that the computer as the only means of using technology in the classroom, there are a host of other tools available to improve the quality of instruction. Table 5 lists modifications made for students using different forms of technology.

Table 5

Technology Modifications

Materials and Methods	Potential Barriers/ Missed Opportunities	Technology Solution
Printed textbook	Difficulty seeing small text	Electronic text with text-to-speech recognition
Printed textbook	Difficulty seeing small text	Image enhancer to make text larger
Printed textbook	Difficulty decoding/understanding word meaning – Spanish is primary language	CD-ROM or other material for practice and intervention
Lecture/whole class	Difficulty comprehending meaning -Spanish is primary language	Provide Spanish/English key Term translation into text-to speech program

Lecture/whole class Participation	Attention Deficit Disorder may cause to miss key information	eText outline with text-to-speech compatibility that student can access
Create written report	Muscular sclerosis- problem with Writing and dexterity	Talking word processor with voice recognition
Independent reading	Difficulty with word meaning	Franklin Speller used to type in word and translate meaning
Independent reading	Low level reading student	Reading Pen II with earpiece so other students are not disturbed

Note. From "Teaching Every Student in the Digital Age: Universal Design for Learning," by D. H. Rose and A. Meyer, 2002

Incorporating technology into the classroom affords all students the opportunity to learn in an environment that promotes cooperation, apathy and understanding of students' various disabilities. For the student, it allows them to be a part of the regular education classroom through the use of modifications. Many of the technologies to help aide in the learning process can be purchased through grants, state aide and other beneficiaries. This helps provide the best education for all children, regardless of their disabilities or deficiencies.

Schools of today have the overwhelming responsibility of adapting to the technological revolution by training staff and teaching students while conforming to

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national, state and local standards. Include state-mandated tests, mid-term examinations, final examinations, school trips, in-services and countless other impediments and you have just some of the elements of a working school system. The Clearview Regional High School District is not alone in trying to infuse technology into their school. With the recent problems schools' face with a limited state budget and a rapidly increasing student population, the expenditures for technology is not always the primary concern of the district.

Over the past four years, the Clearview Regional School District has been trying to plan for technology through the creation of a Technology Budget Advisory Committee. This committee meets throughout the school year to plan for and research ways of incorporating technology into the curriculum to meet the needs of the school, staff and student body. Administrators, technology chairpersons and volunteer staff members are all a part of this committee. This is to ensure that all members of the school are considered in the planning process. Their main goal is to create immediate and long-range plans for the purchase of technology in the district. During this four-year time period, the middle school has added fifty-two laptops, six access points to effectively connect to the LAN servers, forty computers for individual classrooms and have updated computers and other peripherals. This has been done on a yearly basis to ensure that the hardware is capable of handling the applications used throughout the district.

One of the main expenditures during the past two years was the purchase of a PowerSchool program used to effectively run the districts grading processes, attendance, student information, and connect this to a server that would take the place of paper records and student records. Since the purchase of this program the main goal was to

effectively train the administration and staff to record and process information on the computer. The majority of the in-services and workshops in the district were to make sure that every staff member was able to effectively use the PowerSchool program for attendance, grading, progress reports and report cards. Prior to this PowerSchool training the staff was trained for two years the essentials of a computer including such applications as e-mail, word processing, spreadsheets and presentation software. The overall goal was to educate the entire staff on the essential of a computer so that they may operate the programs used in the district.

The elements of infusing technology to the curriculum has been placed at a standstill due to the time and planning used to educate staff members on the computer essentials. According to 2002 reports, Clearview Middle School possessed forty-eight desktop computers, fifty-two laptops, and two computers labs that contained twenty-nine and thirty desktop computers respectively. Educationally, the computers were mostly used as students performed Internet searches, typed material for aesthetic purposes and created PowerPoint and HyperStudio presentations. The laptops have proved to be a major concern to the middle school as their performance had been affected by a LAN server that was not large enough to handle the computer requirements of the district. This has resulted in log-on times that have exceeded twenty minutes. By the time an entire class has logged in to their computers, almost half the class time has already elapsed.

The current research for effective technology integration into the curriculum was lacking. There were limited in-services or training scheduled by the district to aide in this deficit. Most of the money for in-services and training was for the topic of brain-based learning and understanding the learning styles of the students in the district. The premise

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of this project was to learn how to effectively teach to the needs of the student. Unfortunately the technology needs in the middle school were not being met. All eighth graders were required to take a keyboarding class as an elective. Although this was a useful endeavor, many students currently had computers at home and were already adept in typing and keyboard essentials. A greater emphasis on meeting the needs of the students through either a questionnaire or student inventory would assess the students' current knowledge and capabilities so that more advanced courses could be offered.

"While our nation's schools have done a masterful job of preparing students for an industrial age, we are moving at warp speed into a whole new era. The characteristics of our schools and school systems are (changing to prepare) students for a global knowledge/information age. The future of our nation and world depend on the ability of our education system to lead and to adapt as we prepare our students for the future" (Marx, 2002). The incorporation of technology into the world in which we live has transformed our lives, businesses, habits, opportunities, learning and schools. The age of industries has led to the digital age as more and more people wee required, not for labor jobs, but for computer related positions. The computer has transformed the laborious work that humans once have done to the click of a mouse or scanning of data.

While our world is changing it is imperative that our schools change as well to prepare our children for the future. This includes preparing them for jobs dealing with computer programming, technical support, data input, graphics and design. Not only does the classroom have to change, but also the teachers need to be educated how to incorporate technology into their every day activities. Although the age-old saying goes, "You can't teach a dog new tricks," teachers must learn the tricks that afford children the

opportunity to learn the necessary skills to become productive members of society. It is paramount that teachers learn the intricacies of technology through in-service meetings, workshops, gaining professional development, course work and any other modality that places them at a level where they can use technology in their classroom to meet curricular demands. Schools have the incredible responsibility of preparing children for their future and teaching them the types of skills necessary to achieve their dreams. Through proper teacher training and support America's schools can regain their fame as being the best in the world. It is important for all schools to realize that the children that they teach today will be the leaders of tomorrow. Technology can be the tool to expand these learning experiences.

Chapter 3

The Design of the Study

General Description of Research Design

The premise of this project was to research and request data from staff members for the technology handbook. The technology handbook was a useful reference source for staff members in Clearview Regional Middle School aspiring to incorporate technology into the classroom. A list of useful Internet sites, lesson plans, unit plans and other materials useful for the incorporation of technology in the classroom was referenced by subject area content. The result of the research was a concise reference tool that staff members could access for useful ideas.

This handbook provided a needed reference source for teachers as they aspired to incorporate technology into the curriculum. At the Clearview Regional School District the majority of the technology training focused on the use of technology for e-mail, grading programs and attendance records. The limited amount of time allotted for incorporating technology into the curriculum had caused teachers to become stagnant in their growth.

The Information Age transformed the ways students could learn and materials could be presented. The incorporation of technology changed schools and transformed classrooms into endless sources of knowledge. The computer and the Internet have enabled teachers to utilize such items as virtual museum tours, mathematical simulations, computer assisted dissections and engineering programs into the previous confinements of a classroom. The types of projects and activities that were added to enhance a school's

curriculum are endless.

The basis of this project was to collect technology material from teachers for teachers. Due to the limited amount of time spent on integrating technology into the curriculum at Clearview Middle School, the intern aspired to create a project that would give teachers a resource tool that consolidated effective uses of technology. The technology handbook offered teachers a highly effective tool that categorically listed and reviewed sites to expand their teaching repertoire. The handbook fostered the growth of adding technology to the curriculum to adhere to curriculum frameworks.

Description of the Development and Design of the Research Instrumentation

The intern met the Clearview administration to discuss the technology needs of the district in July of 2002. It was decided that a teacher handbook of Internet resources offered pertinent resources to teachers and served as a valuable resource to the district. The administration approved the intern's proposal of the technology handbook for the 2003-2004 school year.

The intern then presented the project to the Clearview Middle School at a faculty meeting on November 4, 2002. At this time the intern outlined the extent of the project, how the data was collected, what material could be submitted and how it would eventually serve as a reference for the entire middle school faculty. A memorandum accompanied this presentation to outline and reiterate the project to the faculty.

A limited amount of information was received during the first month after the faculty meeting. A second technology request was sent out on December 18, 2002. This was done to thank those who had already contributed to the handbook and remind the

faculty of the endeavor.

After informal conversations with staff members in December and January, it became apparent that many teachers were not using technology in their classes. Those who were using technology centered on PowerPoint presentations and Internet searches. The intern then developed a technology questionnaire to survey the teachers on competencies and ways that they used or aspired to incorporate technology in their classrooms. The technology questionnaire was distributed in January to all teachers in the middle school. This information determined: the technology proficiencies of the staff, how often they incorporated technology into the curriculum, their opinion of the technology training at Clearview Middle School, methods of technology that they have used in the classroom and areas in need of technology training to provide administration information to develop future workshops. The questionnaire also thanked those members who had already contributed data and included an additional request for resources.

Description of the Sample and Sampling Technique

The technology request was given all 60 teachers in the Clearview Middle School. The intern initially spoke at the middle school faculty meeting in November of 2002. A letter reiterating the request for technology was placed in their boxes in the main office to ensure that all members of the faculty obtained the technology request. Each Clearview middle school teacher was included in the project. The goal was to receive data from a variety of disciplines and grade levels for the purpose of creating a comprehensive technology handbook.

The second request for examples of technology used in the classroom was made

in December 2002. This was done to inform the faculty of the initial request for technology and acknowledge the people that had submitted material. The final date for submitting material was determined to be February 28, 2003. This set the parameters for submitting any other data for the handbook.

The faculty questionnaire was sent out in January. These were given to the team leaders of each grade level at Clearview and explained in detail. The questionnaires were also given to a physical education teacher to distribute to her department. This was done to achieve better results. The remainder of surveys appropriated for the elective teachers, language teachers and special education department was placed in their boxes in the main office. This method of sampling was determined so that each subject content area, elective, foreign language and special programs were all included in the research. This sampling technique created a wider range of data from multiple disciplines. There was also a second request for technology used in the classroom included in the questionnaire.

A final request for technology was distributed in February. This outlined the parameters for submitting any other data. It also identified February 28, 2003 as the last date for submitting information for the technology handbook.

Description of the Data Collection Approach

The data collection occurred by way of a two step process. The first step was to collect and itemize the data submitted by teachers for the technology handbook. Teachers either submitted data to the intern by interoffice mail or through e-mail correspondence. A total of 8 items were received for the handbook. There were 6 teachers or 10% of the Clearview Middle School participated in the data collection. The material was reviewed,

itemized and critiqued for proper placement in the handbook.

The second data collection technique occurred as the faculty questionnaire was collected in January. This was used to poll the Clearview Middle School's teachers as to their technology aptitude, awareness and competencies. This questionnaire was distributed and collected within two weeks to ensure the validity of the information. This data collection technique presented a holistic view of the staff and their technology uses and aspirations. A total of 37 of the 60 teachers submitted the questionnaire. This represented 62% of the faculty.

Description of the Data Analysis Plan

The data for the technology handbook was reviewed to determine if the sites were active, pertinent and useful for other teachers in the middle school. The intern visited each of the sites, browsed through the available links and formulated a brief review that gave teachers a summary of the important information in each site. All of the technology items were categorized into subject content areas and alphabetized for convenience. The technology handbook would be distributed to the entire Clearview Middle School faculty in September of 2003 to assist them with incorporating technology into the classroom. The handbook would then be scanned and placed as a link in the Clearview home page for access by teachers. The handbook would be placed online so teachers could access and browse the material by clicking on the hyperlinks instead of typing in each web address. The sites that teachers found useful could be placed in their favorites folder for ease of access.

The teacher surveys were analyzed to identify what types of technology were

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currently being used in the classroom. The 37 technology questionnaires were all individually analyzed and recorded into a Microsoft Excel program to make tables that outlined the data. This was done to analyze the data and draw conclusions based on the teachers' responses. The tables outlined; the level of technology proficiencies among the teachers at Clearview Middle School, how often they incorporated technology into the curriculum, how they rated the level of technology training at Clearview Middle School, technology items they have used in the classroom and items that they would like to incorporate into the classroom in the future.

The purpose of the tables was to determine the level of technology proficiency among the teachers at Clearview Middle School and how it set the frameworks for future in-services or training to help teachers achieve their technology goals. This data, along with the new technology handbook, was presented to the Clearview administration in May of 2003 to provide them with information for professional development courses or training that would meet the needs of the teachers.

Chapter 4

Presentation of Research Findings

The premise of this project was to research and request data from staff members

for the technology handbook that was distributed in September 2003. The intern aspired

to create a project that would give teachers a resource tool that consolidated effective

uses of technology. The intern met the Clearview administration to discuss the

technology needs of the district in July of 2002. It was decided that a teacher handbook of

Internet resources offered pertinent information to teachers and served as a valuable

addition to the district's technology initiative. The intern's proposal was approved and

then presented to the Clearview Middle School at a faculty meeting on November 4,

2002. At this time the intern outlined the extent of the project, how the data was to be

collected, what material could be submitted and how it would eventually serve as a

reference for the entire middle school faculty. A memorandum accompanied this

presentation to outline and reiterate the project to the faculty.

There were only five Clearview Middle School teachers that contributed material

for the handbook after the faculty meeting and accompanying memorandum. This

represented 8% percent of the total Clearview Middle School population that received the

technology request. The lack of teacher involvement prompted a second technology

request that was sent out on December 18, 2002. This was done to thank those who had

already contributed to the handbook and remind the faculty of the endeavor. Only one

other teacher submitted material for the handbook after the second request for data. This

amounted to only 10% of the Clearview Middle School's teachers that were involved in

the data collection process.

After informal conversations with staff members in December and January, it became apparent that many teachers were not using technology in their classes. The reasons for these were many. The first was attributed to the two mobile laptop workstations unable to handle the amount of users working at the same time. This caused connectivity problems and the inability to logon an entire class to the system. Another problem was that certain classrooms were unable to achieve a connection to the host that limited technology use for these teachers. A third problem was attributed to the inability to schedule each of a teacher's classes into the computer lab. Keyboarding classes also took place in the first floor computer lab that limited certain teachers to its use. The final problem was due to lack of technology training. The majority of in-services during the past three years had focused on the skills necessary to use the PowerSchool attendance and grading programs. This training entailed teachers learning the computer program used to take daily student attendance, input student grades, include remarks for progress reports and report cards, and locate information pertinent to the district. The PowerSchool training led to a gap in technology instruction that met curricular needs. The informal conversations with teachers also determined that those who were using technology centered on PowerPoint presentations, Internet searches and the typing of documents. These problems resulted in staff members choosing not to incorporate technology in their teaching until the situations were improved.

A technology questionnaire was developed in order to properly document the material discovered in the informal conversations with teachers. This was used to survey the teachers on competencies and ways that they used or aspired to incorporate technology in their classrooms. The technology questionnaire was distributed in January

to all 60 teachers in the middle school. This information determined the level and types of

technology that teachers used in the classroom. The questionnaire also thanked those

members who had already contributed data and included an additional request for

resources.

A total of 37 teachers submitted the questionnaire. This represented 62% of the

faculty that received the questionnaires. The questionnaires were used to create tables

outlining the teachers' responses five separate questions, all dealing with technology in

the district. The 37 technology questionnaires were all individually analyzed and

recorded into a Microsoft Excel program to make tables that outlined the data. This was

done to analyze the information and draw conclusions based on the teachers' responses.

Various tables were used for the data analysis procedure. The purpose was to determine

the level of technology proficiency among the teachers at Clearview Middle School and

how it set the frameworks for future in-services or training to help teachers achieve their

technology goals. This data was presented to the Clearview administration in May of

2003 to provide them with information for professional development courses or training

that would meet the needs of the teachers.

The first response of the technology questionnaire included the following

question: What is your current level of technology proficiency? The responses were

marked on a scale of zero to ten. The number zero was used to identify that a teacher

never used technology, while a ten was used to denote daily use of technology. The

results of the data are demonstrated on Table 6 that used a tally chart to denote teacher's

responses.

Table 6

Technology Questionnaire: Question #1

What is your current level of technology proficiency?

RATING SCALE		FREQUENCY
R	10	X X X X X X X X X X X X
A	9	X X
T	8	X X X X
I	7	X
N	6	X X X X
G	5	X X X X X
	4	X X X X X
S	3	X
C	2.5	X
A	2	X X
L	1	
E	0	
		1 2 3 4 5 6 7 8 9 10 11 12
		F R E Q U E N C Y

The table identified that 12 out of the 37 teachers, or 32%, used technology on a daily basis and rated themselves as highly proficient in technology. The mean score of the teachers who submitted the responses was a seven. This indicated that a majority of the Clearview Middle School staff use technology often and consider themselves proficient in technology.

The second response of the technology questionnaire included the following question: How often do you incorporate technology into the curriculum? The responses were marked on a scale of zero to ten. The number zero was used to denote that a teacher did not incorporate technology into the classroom. The number ten indicated that a

teacher incorporated technology into the curriculum on a daily basis. The results of the data are demonstrated on Table 7 that used tally marks to denote teachers' responses.

The results of this question signified that although 32% of the teachers were highly proficient in technology and used it on a daily basis, it did not extend to the students. Only 8% of the teachers used technology on a daily basis. The majority of the teachers either used technology in the classroom sometimes or moderately.

Table 7

Technology Questionnaire

Question #2: How often do you incorporate technology into the curriculum?

R	10	X	X	X									
A	9	X											
T	8	X											
I	7	X	X										
N	6	X											
G	5	X	X	X	X	X	X	X	X				
	4	X	X										
S	3	X	X	X	X	X	X	X					
C	2.5	X	X										
A	2	X	X	X	X								
L	1	X	X	X	X	X							
E	0	X											
		1	2	3	4	5	6	7	8	9	10	11	12
		F	R	E	Q	U	E	N	C	Y			

The third response included the following question: How would you rate the level of technology training at Clearview Middle School? The responses were marked on a scale of zero to ten. The number zero was used to denote that the technology training at Clearview was poor. The number ten indicated that the technology training at Clearview was excellent. The results of the data are demonstrated on Table 8 that used tally marks to denote teachers' responses.

Table 8

Technology Questionnaire

Question #3: How would you rate the level of technology training at Clearview Middle School?

		1	2	3	4	5	6	7	8	9	10	11	12
R	10	X											
A	9	X											
T	8	X	X	X									
I	7	X	X										
N	6	X	X										
G	5	X	X	X									
	4	X	X	X	X								
S	3	X	X	X	X	X	X	X	X	X	X		
C	2.5	X	X										
A	2	X	X	X	X								
L	1	X	X	X									
E	0	X											
		1	2	3	4	5	6	7	8	9	10	11	12
		F	R	E	Q	U	E	N	C	Y			

The results of this question signified that the majority of the teachers at Clearview believed that the technology training was fair to good. The majority of the teachers rated the training of a three, or fair. This information is quite important due to the lack of technology incorporation into the classrooms. The fair rating of the level of technology training is highly correlated to the lack of technology in the classrooms.

The next part of the technology questionnaire asked the teachers to identify items they have used in the classroom. This was important to determine exactly what types of technology initiatives were being utilized in the classroom to adhere to the district's, state's and core curriculum standards. The items that teachers had used in the classroom identified exactly how the computer labs and laptops were being used. Table 9 represented teacher's answer to the question: Please check any item(s) that you have used in the classroom.

Table 9

Items that teachers have used in the classroom

WebQuests	35%
Virtual Tours/Information	27%
PowerPoint	24%
HyperStudio	8%
Microsoft Word	73%
Microsoft Excel	16%

Multimedia activities	22%
Databases	14%
Internet Research Projects	65%
Online Networking	11%
Online Field Trips	11%
Subject-Content Specific Tutorials	19%
Global Discussions	3%
Teaching Simulations	8%

The results of the data identified exactly what types of technology teachers were using in the classroom. The majority of the teachers had used Microsoft Word (73%) and Internet research projects (65%) in their teaching. The lowest totals were global discussions (3%), teaching simulations (8%) and HyperStudio (8%). This information is extremely important to evaluate exactly what teachers were using technology and computers for in the classroom. This data represented that the computer labs were being utilized mostly for Internet research projects and Microsoft Word applications. This was a concern of the Clearview Regional School District because studies, previously mentioned in chapter two, stated that the typing on computers was of non-educational value. The typing of documents on a computer does not constitute technology usage, but rather, word processing skills. It was extremely important for the district to evaluate exactly how computer labs were being utilized. This procedure would increase the appropriate use of the computer labs and laptop workstations.

The last part of the technology questionnaire included the following question:

Would you like to include any of the following technology advancements in your classroom? Please check any/all that apply. The same items from the previous list of 14 different ways of using technology in the classroom were posed to the teachers. A brief description of each of the technology items were also listed in order to explain terms that teachers may not know about. The results of this question can be reviewed in Table 10. This table lists items that teachers would like to include in the classroom. This data represents information obtained from the 37 teacher questionnaires.

Table 10

Technology Questionnaire

Question #5: Would you like to include any of the following technology advancements in your classroom? Please check any/all that apply.

WebQuests	51%
Virtual Tours/Information	49%
PowerPoint	41%
HyperStudio	41%
Microsoft Word	32%
Microsoft Excel	16%
Multimedia activities	43%
Databases	22%
Internet Research Projects	51%

Online Networking	30%
Online Field Trips	46%
Subject-Content Specific Tutorials	49%
Global Discussions	19%
Teaching Simulations	59%

The results of this question outlined the need for enhanced technology training at the middle school. In all but three area of technology there were an increased number of teachers who wanted to include items into the classroom that they have not used. The only other areas that either declined or remained stagnant were Microsoft Word, Internet research projects and Microsoft Excel. Microsoft Word and the Internet research projects were the types of technology that teachers had used the most in the classroom, according to table 10. This data identified that teachers were eager to learn new types of technology-oriented activities to incorporate in the classroom.

The data was also used to compute the average increases among the 11 other areas of technology. The average increase among these areas was 24%. The items that teachers wanted to include in the classroom that achieved the highest totals were teaching simulations (59%), Internet research projects (51%) and WebQuests (51%). This demonstrated that the teachers were interested in including higher-level technology applications in the classroom. This information was used to determine that increased staff development opportunities were necessary to effectively train the teachers to meet their technology needs.

The data covered in Table 11 identified the percentage differential between what

teachers have included in the classroom opposed to what they would like to include. This data is representative of the need for increased technology training in the district. The results were able to validate that although teachers did not use certain applications in the classroom, based on their descriptions, they aspired to use them in the future. The results concluded the need to improve the district's technology mediums should be improved through teacher workshops or staff development opportunities.

Table 11

Comparison chart to show amount increase/decrease in technology information

WebQuests	+16%
Virtual Tours/Information	+22%
PowerPoint	+17%
HyperStudio	+33%
Microsoft Word	-41%
Microsoft Excel	0%
Multimedia activities	+21%
Databases	+ 8%
Internet Research Projects	-14%
Online Networking	+19%
Online Field Trips	+35%

Subject-Content Specific Tutorials	+30%
Global Discussions	+16%
Teaching Simulations	+51%

The technology questionnaire also requested additional information for the technology. A final request for data was distributed on February 5, 2003 that again thanked everyone who had already contributed information and indicated the last date for submitted data as February 28, 2003. Unfortunately, no other material was received after the second technology request.

The material that teachers' submitted for the handbook was reviewed, itemized and critiqued for proper placement within the handbook. The data was reviewed to determine if the sites were active, pertinent and useful for other teachers in the middle school. The intern visited each of the sites, browsed through the available links and formulated a brief review that gave teachers a brief summary of the pertinent information in the site. All of the technology items were categorized into subject content areas and alphabetized for convenience.

The lack of teacher involvement in the technology handbook process led to the intern researching the majority of the data. Teachers submitted only 11, out of the total 133 sites included in the handbook. This amounted to the teachers contributing only 8% of the total material for the new teacher's handbook. This resulted in the intern researching and contributing 122, or 92%, of the material found in the handbook. This was done to provide the district and the teacher's at Clearview Middle School with

resources to increase their use of technology in instruction.

The technology questionnaires were used to find exactly what types of information should be included in the technology handbook. All of the types of items that teachers wanted to use in their classrooms were included in the handbook. The listings of sites includes information for WebQuests, virtual tours, multimedia activities, Internet research projects, online field trips, tutorials, and simulations were all included to meet the needs of the teachers.

The handbook was finalized on March 5, 2003 and was shown to the Clearview Regional School District's administration for approval. The material presented in the handbook was formatted, scanned and up-linked to the Clearview Middle School Library home page for the start of the 2003-2004. The handbook was included as a link in the Clearview Middle School Library home page for access by teachers. It was placed online so teachers could access and browse the material by clicking on the hyperlinks instead of typing in each web address. This promoted increased teacher use. The sites that teachers found useful were placed in their favorites folder for ease of access.

The intern presented the handbook during the September 2003 faculty meeting to inform each and every staff member of the information found in the technology handbook. The handbook served as a concise guide for teachers who aspired to integrate technology into the curriculum. It enabled them to find information on their exact subject content area and type of activity desired. The handbook was added to the Clearview Regional School District's supplementary material on technology.

Chapter 5

Conclusions, Implications and Further Study

The purpose of this project was to research and request data from staff members for a technology handbook. The intern created a 27-page technology handbook that offered teachers a highly effective tool that categorically listed Internet sites to expand their teaching repertoire. This resource tool provided teachers with new pathways for incorporating innovative teaching strategies such as virtual tours, simulations, WebQuests, multimedia presentations and other resources into the classroom. The handbook fostered the growth of adding technology to adhere to curriculum frameworks.

The data for this project was gathered through technology references and sites submitted by teachers. The results of this endeavor indicated that the level of technology usage at Clearview was inadequate to meet the needs of the students. Only 10% of the Clearview Middle School's teachers submitted material for the handbook.

The limited data collected from the teachers led to the design of a technology questionnaire. The technology questionnaire was distributed to all 60 teachers in the middle school. This information determined the level and types of technology that teachers used in the classroom. A total of 37 teachers submitted the questionnaire. This represented 62% of the faculty that received the questionnaires. The questionnaires were used analyze the teachers' responses five separate questions, all dealing with technology in the district. The results of the data outlined the technology proficiencies among the teachers at Clearview Middle School and set the frameworks for future in-services or training to help teachers achieve their technology goals. This data was presented to the Clearview administration in May of 2003 to provide them with information for

professional development courses or training that would meet the needs of the teachers.

The results of the questionnaire validated the need for increased teacher technology in the middle school. This data documented that the computer labs were being utilized mostly for Internet research projects and Microsoft Word applications. This was a concern of the Clearview administration because studies previously mentioned stated that the typing on computers was of non-educational value. The typing of documents on a computer does not constitute technology usage, but rather, word processing skills. It was extremely important for the district to evaluate exactly how the computer labs were being used and to develop a criterion for appropriate instructional technology use.

The technology questionnaires were used to ascertain exactly what types of information teachers needed in the technology handbook. Items included in the handbook were: information for WebQuests, virtual tours, multimedia activities, Internet research projects, online field trips, tutorials, and simulations.

The technology questionnaires were also used to analyze how teachers felt about the technology training at Clearview Middle School. It was determined that teachers' technology proficiency was above average (6.9 out of a scale of 1-10). The data represented that the teachers used technology often and on a regular basis. Although many of the teachers felt that they were skilled in technology they only incorporated activities into the curriculum sometimes (4.3 out of a scale of 1-10). This justification for this was evident in the teachers' fair to good rating of the technology training at Clearview Middle School. This data supports the justification for improved technology training at Clearview Middle School to meet the needs of the teachers and students.

The lack of teacher involvement in the technology handbook process led to the

intern researching the majority of the data. Teachers submitted only 11 out of the total

133 sites included in the handbook. The majority of information for the handbook was

researched and critiqued by the intern in order to provide the district and the teachers at

Clearview Middle School with resources to increase their use of technology in the

classroom.

The intern planned to present the handbook during the September 2003 faculty

meeting to inform each and every staff member of the information and types of activities

included. The intern believes that the handbook serves as a concise guide for teachers

who aspired to integrate technology into the curriculum. The teachers will be able to find

information on their exact subject content area and type of activity desired. The handbook

was added to the Clearview Regional School District's supplementary material on

technology.

The teacher's handbook offered only a small piece of the puzzle for improving the

integration of technology into the classroom. The Clearview administration, with the

assistance of the intern, examined how teachers' use technology in the district and

developed plans to offer opportunities for growth. The first step in the plan must be to

make technology one of the key focal points in the district. The workshops and

professional development opportunities should center on the incorporation of

technological activities that require developmental technology skill levels. This should be

done through content specific workshops that focus on the needs of teachers. The smaller

workshops would allow the school to offer the best possible activities in an environment

that encourages questions and mastery. The differentiated workgroups, based on ability

levels, guarantee constant professional growth. The district does not have an expectation

for certified staff proficiency in technology. Hopefully the results of this study will help the administration define the district's technology needs and initiate a program to make sure all staff are trained in technology to better meet the needs of the students.

The next step for proper technology integration is to ensure that the technology at Clearview Middle School is being used effectively and efficiently. In the past the computer labs and laptop workstations were mainly used for Internet research and Microsoft Word applications. Teachers were able to schedule time for technology use without identifying the purpose of using the computers. For example, teachers have signed up to use the computer lab for a week at a time for the purpose of typing papers. As stated in chapter four, this does not constitute an effective use of technology. The district must make a conscious effort to monitor teacher use of technology and ensure that the activities are beneficial. A school technology committee, under the leadership of the school administration, could develop a list of appropriate uses for technology. A guideline for priority use of district computer labs could be developed based upon the agreed upon effective uses of technology in instruction. This would be an effective way to encourage effective uses of technology in the district computer labs.

The term school has been redefined in our current and future societies. "In the past a 'school' was generally defined as a building. In the 21st century, schools will become nerve centers, with walls that are porous and transparent connecting teachers, students and the community to the wealth of knowledge that exists in the world. Schools in the 21st century will not be confined by their walls but will be encompassing of the entire community and the world" (Marx, Long and Withrow, 2002). The technology handbook provided teachers an effective resource that enabled teachers to open their

classrooms to the world. It opened the doors for teachers to try new activities and incorporate material that coincided with their curriculum. This provided an incentive for a school-wide initiative to integrate technology as another instructional tool to meet the needs of the students and district.

Teachers alone cannot change the way information is presented to the students. It is the obligation of the administration, through their leadership, to make the integration of technology a mandated proficiency requirement that is supported and valued. They must offer teachers the types of in-services and workshops that are of the highest standards to meet the needs of the students. Society and schools are changing at an overwhelming rate. Administrators must articulate and facilitate the development of this vision that is shared and supported by the entire school community (Ubben, Hughes & Norris, 2001). They must advocate that the instructional programs are based on sound research, the expertise of teachers and the recommendations of the learned societies (Ubben, Hughes & Norris, 2001). "Teachers must be the brightest and best society has to offer; they must be well prepared for what they teach; they must believe in themselves and their contributions to children and society; yet, they must be constantly committed to improving, no matter how good they are" (Marx, Long and Withrow, 2002). As the degree of technology advances, it must be the obligation of schools to stay at the forefront of these advances to meet the needs of the students. This is only the beginning. It is the school's responsibility to ensure that all students utilize the learned skills and become contributing members of society and committed life-long learners.

The technology handbook will add to the future studies of effective ways to incorporate technology into the curriculum. After the technology handbook is distributed

to all Clearview Middle School staff in September 2003, the Clearview administration could poll the teachers on the usefulness of the handbook to identify what Internet sites and activities are being used in the classrooms. This could be used to identify what types of in-services or professional development programs are needed in the district to meet the needs of the teachers. In addition, the teacher sign-in computer lab logs should be checked on a weekly basis to ensure that they are being used for measures approved by the technology committee. The main focus of future studies should be the creation of certified staff proficiency for technology. This system would place the teachers on instructional levels and provide professional development opportunities centered on these expectations. The results from these activities could be documented to add to current research of effective technology education programs in schools. Surrounding districts of Gloucester County could use this to meet local, state and curriculum standards that mandate the incorporation of technology into the classroom.

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APPENDIX A

FIRST TECHNOLOGY REQUEST

To: All Clearview Middle School Staff

From: Frank Corley

Date: November 4, 2002

Topic: Technology request for Thesis

This year I am completing my administrative internship under Bob Bennette. In an attempt to create a project that includes the middle school faculty, I am working on a **technology handbook of resources** that will eventually be distributed to the **entire Clearview Middle School staff**. This book will include information **from teachers for teachers**. I know many of us want to include technology in the classroom but are sometimes overwhelmed with the complexity and time it takes to research and put technology to use. This handbook will be a great resource for the following items:

1. Great Internet sites for research
2. Interesting and unique lesson plans
3. Unit plans that incorporate technology
4. Any other technology project ideas (software, hardware, contests)

If anyone has incorporated technology in their classroom and would like to submit it for the handbook, please forward to:

Frank Corley – Middle School
OR
corleyfr@mail.clearviewregional.edu

If submitting lesson plans or unit plans please include your name, subject taught and grade so that I may use this information in the bibliography for my thesis

The information can be submitted any time before February of 2003. I will be sending out another memorandum before winter break to remind everyone of this endeavor. I thank you in advance for your help and support.

APPENDIX B

SECOND TECHNOLOGY REQUEST

To: All Clearview Middle School Staff

From: Frank Corley

Date: December 18, 2002

Topic: Technology request for Thesis

Thank you everyone who has already contributed information for the 2003-2004 technology handbook. This book will include information **from teachers for teachers**. If anyone is clearing out their files or come across any new and exciting teacher materials over winter break please feel free to submit them to help our colleagues. This handbook will be a great resource for the following items:

1. Great Internet sites for research
2. Interesting and unique lesson plans
3. Unit plans that incorporate technology
4. Any other technology project ideas (software, hardware, contests)

If anyone has incorporated technology in their classroom and would like to submit it for the handbook, please forward to:

Frank Corley – Middle School
OR
corleyfr@clearviewregional.edu

If submitting lesson plans or unit plans please include your name, subject taught and grade so that I may use this information in the bibliography for my thesis. The information can be submitted any time before February of 2003. I thank you in advance for your help and support.

APPENDIX C

TECHNOLOGY QUESTIONNAIRE

To: Clearview Middle School Staff Members

From: Frank Corley

Topic: Technology Questionnaire

Date: January 22, 2003

I hope all of you are having a great school year. I have received some great web sites for technology from our awesome teachers. The handbook that is currently being created will be distributed at the beginning of September. If you have any other exciting Internet web sites, lesson plans or unit plans, feel free to place them in my box or e-mail them to corleyfr@clearviewregional.edu.

As a second part of my project, I would appreciate your help in answering the following questions that deal with how technology is being used at Clearview Middle School. This is being used for **research**, not administrative review. I thank you in advance for your support and participation in this survey.

---

1. What is your current level of technology proficiency?

0   1   2   3   4   5   6   7   8   9   10
never use   rarely use   use sometimes   use often   use daily

---

2. How often do you incorporate technology into the curriculum?

0   1   2   3   4   5   6   7   8   9   10
never   sometimes   moderately   often   daily

---

3. How would you rate the level of technology training at Clearview Middle School?

0   1   2   3   4   5   6   7   8   9   10
poor   fair   good   very good   excellent

---

4. Please check any item(s) that you have used in the classroom.

___ Web Quests   ___ Databases
___ Virtual Tours/Information   ___ Internet Research Projects
___ PowerPoint   ___ Online Networking
___ Hyper Studio   ___ Online Field Trips
___ Microsoft Word   ___ Subject-Content Specific Tutorials
___ Microsoft Excel   ___ Global discussions
___ Multimedia activities   ___ Teaching Simulations

5. Would you like to include any of the following technology advancements in your classroom? Please check any/all items that apply.

_____ **WebQuests** – A WebQuest is an inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the Internet. These are sometimes supplemented with videoconferencing.

_____ **Virtual Tours/Information** – This are sites on the Internet where you can take tours of museums, take part in virtual 3D dissections, and construct items on the computer.

_____ **Power Point** – A professional type of presentation software that is used to create sequences of words and pictures that tell a story or help support a speech or public presentation of information.

_____ **Hyper Studio** – A type of presentation software, usually used with students, that is used to create sequences of words and pictures that tell a story or help support a speech or presentation.

_____ **Microsoft Word** – A program used to formulate documents and applications that require typed material.

_____ **Microsoft Excel** – A program used to input data for the purpose of tallying information, creating graphs or for organizational measures.

_____ **Multimedia activities** – This is any activity that uses the computer to instruct or teach a certain skill or topic with the use of video clips, animations and audio.

_____ **Databases** – A type of program used to query data and create formatted worksheets, newsletters or other types of specified information.

_____ **Internet Research Project** – A research project that uses the Internet as the primary reference source.

_____ **Online Networking** – The act of collaborating with other teachers, students or professionals on the Internet through global discussions that are monitored for educational use.

_____ **Online Field Trip** – A field trip that can be viewed by students and teachers online. Such places as zoos, government buildings, and other tourist attractions can be accessed via the Internet. These are usually available for free.

_____ **Subject-Content Specific Tutorials** – Tutorials are software or Internet sites that can be used to instruct students on a computer. These can include guided lessons with interactive quizzes and data to record student progress.

_____ **Global Discussions** – A type of discussion between schools, students, scientists and other professionals in an online atmosphere.

_____ **Teaching Simulations** – A simulation is an activity on a computer, either through an Internet site or purchased software, used to teach a skill or lesson. They are usually highly animated with the use of audio and video technologies.

APPENDIX D

LAST TECHNOLOGY REQUEST

To: All Clearview Middle School Staff

From: Frank Corley

Date: February 5, 2003

Topic: Technology request

Thank you everyone who has already contributed information for the 2003-2004 technology handbook. This book will include information **from teachers for teachers**. This handbook will be a great resource for the following items:

1. Great Internet sites for research
2. Interesting and unique lesson plans
3. Unit plans that incorporate technology
4. Any other technology project ideas (software, hardware, contests)

If anyone has incorporated technology in their classroom and would like to submit it for the handbook, please forward to:

Frank Corley – Middle School
OR
corleyfr@clearviewregional.edu

If submitting lesson plans or unit plans please include your name, subject taught and grade so that I may use this information in the bibliography for my thesis. The **last date for submitting data is February 28, 2003**. I thank you in advance for your help and support.

The **TECHNOLOGY HANDOOK** will be distributed to all members of the Clearview Middle School faculty in September 2003.
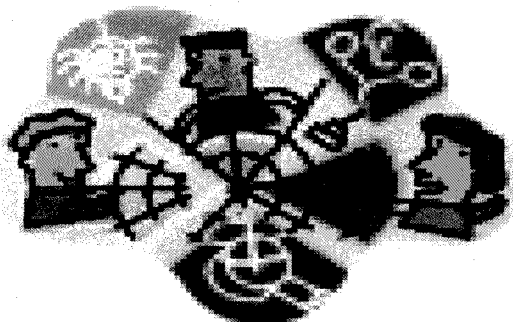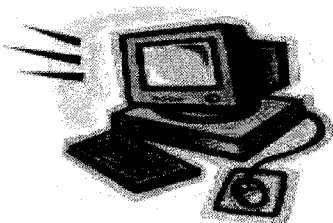
APPENDIX E

TECHNOLOGY THANK YOU FORM

THANK YOU

Thank you so much for submitting information for the Clearview Regional Middle School technology handbook. I really appreciate your willingness to help and support both my thesis requirement and ideas for the other teachers. I am looking forward to completing this project and distributing the information to the entire staff. Your contribution is surely appreciated.

Frank Corley

Thank you...
Thank you...
Thank you...
Thank you...

nvtech.com

Additional technology items may be sent to:
corleyfr@mail.clearviewregional.edu
or
placed in my box in the main office

APPENDIX F

TECHNOLOGY HANDBOOK

CLEARVIEW MIDDLE SCHOOL

TECHNOLOGY HANDBOOK

2003-2004

"In a completely rational society, the best of us would be teachers and the rest of us would have to settle for something less, because passing civilization along from one generation to the next ought to be the highest honor and the highest responsibility anyone could have."

Lee Iacocca

GENERAL TOPICS

A to Z Teacher Stuff
www.atozteacherstuff.com
This site was created by a teacher for teachers. It's main premise is to help teachers find online lesson plans and resources more quickly and easily. Having been online since 1997, the site has grown to more than 1000 pages of useful material! Cited as one of the most popular Web destinations for teachers, more than 1 million visitors are counted each month. Free lesson plans are broken down by subject area or grade level to narrow the searching procedure. In addition, this site has thematic projects, a teacher store with discounted pricing, online teacherchat forums and a host of other links.

abcteach
http://abcteach.com/
This is one of the most highly traveled teacher websites offering more than 5000+ printable theme units, guide for research and reports, certificates, guides for setting up student portfolios, fun activities and reading comprehension activities. This is a must site for beginning and veteran teachers alike.

AskEric Lesson Plans
http://askeric.org/Virtual/Lessons/
This collection of lesson plans offers more than 2000 unique topics that have been written and submitted by teachers all over the United States. You can browse the site on such subjects as the arts, computer science, foreign language, health, information literacy, interdisciplinary, language arts, mathematics, philosophy, physical education, science, social studies and vocational education. With such a wide array of content areas, this site should be a bookmark for all teachers.

American Teachers – homepage
www.americanteachers.com
This site contains lesson plans and resources for all the core content area in addition to music, art and physical education. There is also information for grant applications and listings of sites that are safe and appropriate for student research. Also included in information pertinent for retirement planning that is useful for new teachers and veterans alike.

Big Chalk
http://www.bigchalk.com
This is an excellent service that offers comprehensive library resources, teacher resources, and an online curriculum. This site includes such award-winning tools as a ligrary, search engine, multimedia reference area, and a teaching and learning series that offers tools and solutions for the successful integration of technology into the curriculum.

Bob Bowman's Guide to Free Educational Technology
http://www.user.shentel.net/rbowman/
This is a great technology site where you will find how-to guides, educational freeware, online tutorials, free support sites and links to other helpful web resources to understand how to use technology effectively and correctly.

Blue Web'N
http://www.kn.pacbell.com/wired/bluewebn/
This is an online library of over 1200+ outstanding Internet sites categorized by subject, grade level, and format (lessons, activities, projects, resources, references, and tools). You can search by grade level, subject content, or specific categories. The subjects that can be used for searching are Arts, Business, English, Foreign Language, Health and Physical Education, History and Social Studies, Mathematics, Science, Technology, Vocational Education, Education, and Community Interest. Each of these subjects can be searched for web-based tutorials, web based activities, web based projects, unit and lesson plans, hotlists, references and tools.

Camden County Academy of Teaching and Learning
http://www.ccts-ettc.org/ettc/top.htm
Designed by a Camden County Technology fellowship recipient, this site is a comprehensive resource for teachers from K-12. One of the most interesting features is the Ask the Tech/Mentor where you can e-mail questions about software problems, web resources, content specific resources and about topics concerning the use of technology in your classroom. It is though a tech support individual is by your side at all times. In addition, links to Cyberhunts, WebQuests, assistive technology, collaborative projects, lesson plans, graphic organizers, rubrics and assessments, Internet field trips and professional workshops are all listed on the site.

ChannelOne
www.channelone.com
This is a great site for teachers who aspire to bring real-life situations, problems and current events to middle school students. This web site offers detailed stories that stem from news events on the ChannelOne monitors every morning. There are also other links and stories that are not included in the morning news. These stories are can be used in every class as the topics span from current events to controversial topics that can be debated and written about.

Clearview Middle School Web Library Mullica Hill
http://www.clearviewregional.edu/docs/ms/libra/firstpage.htm
A great site for all Clearview teachers is our own Library site run by one our finest, Michelle Marhefka. She has dedicated many hours researching and helping teachers place appropriate material onto this site for easy reference. You can find information for project guidance, bibliography sheets, directories and search engines for exploring the Internet and a great Pathfinders link page. Some of the great projects are on this site such as the Spanish and French WebQuests (mentioned by Mrs. Maccherone), Holocaust resources, biographies and more.

Community Learning Network
http://www.cln.org

This site is designed to help K-12 teachers integrate technology into the curriculum. You can find information on almost any topic on this comprehensive website. Physical Education, Health, Fine Arts and Technology Education are also included with the usual core content topics. Every site is reviewed to ensure that can be an asset to the classroom.

Developing Educational Standards
http://edstandards.org/Standards.html

This site includes an annotated list of Internet sites with K-12 standards and curriculum framework documents. You can choose to search for standards by state and subject areas. This site is the acknowledged base and primary source for finding educational standards on the Internet. Click on the technology link for various ways to infuse technology into the curriculum. This site is definitely geared to administrators and technology coordinators.

Dr. Roger Taylor presents...Curriculum Design Online
www.rogertaylor.com

This site is a favorite among many teachers in the Clearview Regional School District. It specializes in curriculum design for differentiated instruction including special needs learners and the highly gifted student. The unique research outlined uses specific application of the most current brain-based research, multiple intelligence models, and constructivist hands-on project-centered learning in alignment with state defined benchmarks and standards. This site has a User ID number and password that it updated each year. See Barbara Stubbs for the updated logon material for the new school year.

Educational Web Adventures
http://www.eduweb.com/adventure.html

Are you interested in teaching art, science or social studies in a new and creative format? Try the art workshop adventure where you find out how to create a multimedia puppet show. How about the watershed game where students try and preserve the water quality from human activities. There are many and interesting ways of expanding the world of learning for students.

Education World: Technology in the Classroom Center
http://www.educationworld.com/a_tech/

This site offers a wide variety of information as to how technology can be integrated with the curriculum. Unique topics such as distance learning, Internet projects, technology planning, techtorials and WebQuests are all available on this site. Specific examples of WebQuests include a project called Inventions – America's Best where students work in teams to research inventions that have made an impact on life in the United States. Another is Personal Budget WebQuest where students research how much it costs to live the life of their dreams and investigate careers that would provide enough income for their desired lifestyles.

Education Planet – The Education Web Guide
http://www.educationplanet.com/meritpopunder.html

This site has information for teachers, students and parents. There are eLearning guides and up-to-date educational news that will be beneficial to your students. You can search over 100,000 top educational sites for lessons and teacher materials. There is also access to over 20,000 lesson plans for use in any learning environment.

The Educators Network: Where Teachers Come First
http://www.theeducatorsnetwork.com/main/leads/joinin3.htm

All you have to do is give your e-mail address and every week the Educators Network will send you a weekly newsletter filled with the latest lessons, thematic units, worksheets, tools and savings for teachers. Hundreds of thousands of teachers in more than 157 countries already receive the beneficial information. This is great if you would like new ideas each and every week without having to browse the Internet for new ideas.

The Global Schoolhouse
http://www.gsh.org/

This is one of the best sites for online opportunities where teachers can collaborate, communicate and share learning experiences. Click on the projects registry to find materials for your exact grade level and subject content area. Join an African adventure, trek across the Antarctic or ride camels throughout Australia. These interactive experiences are all tremendous learning experiences than extend the classroom walls.

International Society for Technology in Education
http://www.iste.org/

Click on K-12 in the teacher resources link to find information on all the core subject areas and information for art, foreign language, music and physical education. There are research projects, lesson plans and other teacher resources located on this site. There is also additional information for professional development ideas, and online bookstore and up-to-date technology standards.

iloveteaching.com
http://www.iloveteaching.com/

This site is particularly useful for beginning teachers or those who have been in the profession for a few years. Classroom discipline techniques, making up a substitute folder and ways to get organized. There is also a great link for teachers and technology where new and veteran teachers can find information on how to integrate technology into the classroom, sample Internet lessons and WebQuests.

Kathy Schrock's Guide for Educators
http://school.discovery.com/schrockguide/
This site has received numerous awards for being one of the most beneficial sites for teachers on the Internet. It has a categorized list of subject areas to search for web sites, lesson plans and curriculum guides to enhance your curriculum. It includes some of the best sites for teaching and learning. This is a great bookmark for teachers aspiring to use the Internet to gain ideas and innovative learning projects.

LessonPlans.com
http://www.lessonplanspage.com
Interested in finding a lesson of the subjects of Math, Science, Music, Language Arts, Computers and the Internet, Social Studies, Art, Physical Education and Health and interdisciplinary units? You can search this site by subject and grade level to find awesome ideas for many different topic areas. Don't forget to click on the eFundraising link to locate ways to improve the fundraising activities of your school.

Making the Connection
http://www.icondata.com/stores/marketing/main.htm
If you are interested in learning how to use technology and the Internet then this site is for you. Although many teachers are cognizant the benefits of technology and their many uses, there are still some who need the added training but are hesitant about asking for more help and guidance. These online courses will familiarize you with the Internet as you work on tutorials that help expand your knowledge and use of technology.

MarcoPolo – Internet Content for the Classroom
www.marcopolo-education.org
MarcoPolo undoubtedly provides one of the best and highest qualities, standards-based Internet content material for teachers. It caters to professional development for K-12 teachers and students throughout the United States. The site is divided into three different portals including teacher resources, professional development, and state network. The teacher resources section provides high-quality, standards-based lesson plans, student activities, reviewed Web sites and other useful resources. The professional development area is used to gain information for training and resources for the MarcoPolo program. Finally the state network section explains how the content provided throughout the site is aligned with New Jersey's and other states' curriculum.

MidLink Magazine - The Digital Magazine by Students, for Students - Ages 8 - 18
http://longwood.cs.ucf.edu/~MidLink/index.html
MidlLink Magazine's Mission is to highlight exemplary work from the most creative classrooms around the globe. It is an extremely useful sight for not only major subject contents, but for instructional technology, higher order thinking skills, ESL programs and collaborative projects. You must click on the Teacher Resource Room and Educator Hot List to find information on almost any topic imaginable. This site is one that should be placed in their favorite places list for information on teaching rubrics, online field trips, professional organizations, newspapers, journals and more.

Newspapers in Education
http://nieonline.com/

Did you ever wonder how you could use the newspaper in your classroom as an educational tool? Although most people believe that only Social Studies teachers can use the newspaper, this comprehensive website proves them wrong. This site includes sample lessons, sample quizzes, virtual tours and a host of different ways to incorporate the everyday newspaper as a unique and viable educational tool.

Online Class: Internet Education Projects
http://www.onlineclass.com/

This site presents inquiry-based teaching units that focus on Internet resources. There are six to ten week collaborative projects that a whole team can work on together as you interact with other schools. There are also two to four hour lesson plans that can be used at anytime without the collaboration of other schools. These unique teaching experiences bring the world of technology into schools while adapting to core content standards.

Peak Learning Systems – Educator's Resource Center – New-Teacher.com
http://www.peaklearn.com

This site is designed to help new teachers find inspiration, information and tools to become effective and growing professionals for kids. This site offers teaching tips and advice for new teachers in addition to innovative websites. There is also Internet resources to ensure that you have the knowledge you need to begin the year on the right foot.

PBS – TeacherSource
http://www.pbs.org/teachersource/siteguide/siteguide.shtm

This site offers a vast array of resources in addition to over 3000 lesson plans updated on a daily basis. There are tips on how to effectively teach with technology, material on interdisciplinary units, PBS television programs geared towards the curriculum, professional development services and education's best resources searchable by curricular subject, topic and grade level and standard. The lesson plans are quite unique and offer a great way to infuse different teaching styles into your classroom

Puzzlemaker
http://www.puzzlemaker.com

This is one of Barbara Palmo's favorite sites for help in creating puzzles and games. You can create mazes, word searches, crossword puzzles, number blocks, math squares and even cryptograms. This is an excellent resource to create fun reviews before giving the big test.

refdesk.com – The single best source of facts on the net.
http://www.refdesk.com/
This name states it all for this site. There are reference resources, news, facts at a glance, a dictionary, thesaurus, current events, weather, business, and material on just about anything you need or want to know. The site has links to over 7,500 sites for facts and other questions.

Scholastic.com
http://www.scholastic.com/
Just click on the teacher resource center link for great information for ready-to-go lessons, ideas for teaching with technology, online activities, research starters and more. This site also has valuable information on many different classroom magazines all available online. Use current events to teach about Math, Science, Social Studies and English.

The Scout Report
http://scout.cs.wisc.edu/
This site is one of the Internet's longest running publications, offering online resources to researchers, educators, and anyone interested in high-quality online material. The site provides information on such topics as science, math, engineering, technology, and foreign languages, to name a few.

Sites for Teachers: The Net's Best Resource for Teachers
http://www.sitesforteachers.com/
This web site offers over 600 links for teachers. You name the topic and this site will guide you any web site that offers information on your topic. It is as easy as that. All you have to do is type in your topic and let the search engine do the rest. This turns countless hours of searching and browsing to the typing in of a search and a click of the mouse.

Spartanburg District 3 County Schools WebQuests
http://www.spa3.k12.sc.us/WebQuests.html
The Spartanburg District has created and posted a variety of WebQuests that can be used for all K-12 educators. Most of the WebQuests include links that are appropriate for students to research as well as suggestions for further research. The WebQuests are constructed around a scenario of interest to students. There is also interesting material on how to understand WebQuests, learn the design principles and templates to assist teachers daring enough to create their own.

Teachnet.com
http://www.teachnet.com/
This website has information on just about every subject area, including technology links, seasonal material, information for parents and more. Click on the how-to links for ideas for bulletin boards, decorating the classroom, back-to-school information, and public relations. Don't forget to click on the take 5 link for five-minute activities for the beginning or end of class.

The Teachers Guide – Virtual Fieldtrips
http://www.theteachersguide.com/virtualtours.html

This site has a great collection of lesson plans, thematic units and virtual tours. There is also free educational software, clipart and printouts available for teachers. Also included are interactive sites, guides for computers, online reference tools and various other links to great educational websites.

Teachers Helping Teachers
http://www.pacificnet.net/~mandel/

This site offers countless lesson plans, educational links and my favorite, stress reduction. In addition to the subject content areas, there is also information on classroom management, the arts, special education and topics of the week. You can also click on the guestbook to interact with teachers around the world.

Teachers.net – The Ultimate Teacher's Resource
http://www.teachers.net/

In this site you can learn how to create your own webpage by clicking on web tools, find lesson plans on almost any topic imaginable and find endless resources on the curricula link. This is a great site for any teacher aspiring to find new and innovative information on the Internet.

Teachers Network
http://www.teachnet.org/

This site's main emphasis it to improve student learning by helping teachers integrate web-based activities into the classroom. Teams of teachers have designed and published the curriculum units with the purpose of disseminating them to schools around the world. There is access to curriculum units, technical specialists and grants. Almost every subject imaginable is covered in the site, with foreign language, the arts and library activities to name a few.

Teachervision.com
www.teachervision.com

Interested at building an easy website, finding quality lesson plans on a variety of subject content areas, locating graphic organizers or participating in cross-curricular activities? This is a great website to get you on your way to improving your daily repertoire. I currently have my website through teachervision. Check it out at www.myschoolonline.com/nj/mrcorley.

TEAMS Distance Learning
http://teams.lacoe.edu/

This is an awesome website with information on almost anything you can possibly think of. In addition to the usual lesson plans and pertinent links, this site offers incredible classroom projects, quality listings of online newspapers for teachers and students, parent resources, professional development ideas, references and informative information for the incorporation of technology into the curriculum.

Thirteen Ed Online
http://www.thirteen.org/edonline/

This site has original online lessons from a variety of disciplines. Just click on the lesson plans link and use one of the interesting lessons to bolster your repertoire. Try the interdisciplinary link for a unit that your whole team can participate in together.

U.S. Department of Education
http://www.ed.gov/index.jsp

This site includes information for parents, teachers, students and a guided tour of the many resources found on the site. Be sure to click on the link for educational resources to locate information of a wide variety of subject areas. There are numerous lesson ideas and information on instructional materials to give you more ideas for the classroom.

Virtual Tours – Over 300 Virtual Tours
http://virtualfreesites.com/tours.html

This is an incredible site with access to over 300 different places for virtual tours. You can have your class travel to museums, exhibits, points of special interest and U.S. government buildings. This is a great way to extend your classroom and have students visit a host of sites from around the world that would otherwise been dismissed. There are such activities as virtual reality tours and full around the globe adventures. This is an extraordinary site for all.

The WebQuest Page at San Diego State University
http://webquest.sdsu.edu/

This site is a favorite among many teachers and is one of education's new found secrets. Many teachers have heard of WebQuests but have no idea what they are. As defined in this site, "A WebQuest is an inquiry-oriented activity in which most or all of the information used by learners is drawn from the Web. WebQuests are designed to use learners' time well, to focus on using information rather than looking for it, and to support learners' thinking at the levels of analysis, synthesis and evaluation." This site provides training and activities to show teachers how to make effective WebQuests and gives excellent examples. You can even search the site for thousands of teacher-submitted WebQuests that will take your class to another level. You can thank Amy Flemming for submitting this site for everyone to use!

LANGUAGE ARTS RESOURCES

Cyber English
http://www.tnellen.com/cybereng/
Interested in how to incorporate technology into the English curriculum? This site offers accounts and articles how teachers have planned and prepared for the technology revolution. It also offers class projects that can be used to advance your teaching.

The Power of Story
www.pbs.org/circleofstories
This Circle of Stories website from PBS honors American Indian storytelling and the importance of that tradition by using documentary film, photography, artwork and music to explore this custom. The site presents songs and stories from several tribes and uses Real Audio, video, photos, graphics and Flash animations to enhance compelling words and rhythms.

The Academy of American Poets
www.poets.org
Interested in poetry? Amy Flemming has located a site that will be useful to anyone who includes or wants to include poetry in the lessons. Click on the Curriculum Units and Lesson Plans link to view how other teachers incorporate poetry into the classroom.

CLWG: The Children's Literature Web Guide
http://www.ucalgary.ca/~dkbrown/index.html
This is an awesome site if you would like information on anything having to do with children's literature. It attempts to categorize and create links for children's books found on the Internet. There are links for the current children's book awards, great authors, bestsellers and excellent teaching ideas. Don't forget to click on a host of other links for the reader's theater, authors on the web, books on the web, and resources for teachers, parents, storytellers, writers and illustrators.

The Complete Works of William Shakespeare
http://the-tech.mit.edu/Shakespeare/works.html
Are you interested in incorporating the works of one of the greatest writers of all time? This site offers a complete library of his works all on one page that are just a click away. Find information on his comedies, tragedies and histories that have transformed the way information has been portrayed forever.

Bartleby.com
http://www.bartleby.com/

This site has a vast amount of free reference material including new editions of the: Columbia Encyclopedia, American Heritage Dictionary, Roget's II: The New Thesaurus, American Heritage Use of American Usage, Columbia World of Quotations, Simpson's Contemporary Quotations, Bartlett's Familiar Quotations, King James Bible, Oxford Shakespeare, Strunk's Elements of Style, World Factbook and the Columbia Gazetteer. There is no need to purchase reference material every year when recent editions of some of the most used English reference materials can be accessed when needed.

Encyclopedia Mythica
http://www.pantheon.org/

In this site you will have the opportunity to explore the exciting world of mythology, folklore and legend. It contains over 6100 definitions of gods and goddesses, supernatural beings and legendary creatures and monsters from all over the world. Transform your class through stories about unicorns, dragons, Atlantis, gnomes and leprechauns. This will definitely be a favorite of your students.

English To Go
www.english-to-go.com/english/sample_lessons.cfm

This site offers time saving, photocopiable lesson plans based on news stories from Reuters News Agency. These instant lessons are trusted by thousands of members who use them to enrich their teaching experience every week. There are also high quality lessons and additional teaching resources that provide a valuable toolkit to help you teach your students about their rapidly changing world and how to communicate more effectively within it. Incorporate current news articles as part of your English curriculum and teach students the meaning of today.

Favorite Poem Project
http://www.favoritepoem.org/

This site has new and innovate ways to revitalize your poetry units and offer students interesting project ideas. Click on the project to see one way that your poetry curriculum can be heightened to a new level. The teachers link offers lesson plans, links and ways that poetry can be used across the disciplines.

Guide to Grammar and Writing
http://www.ccc.commnet.edu/grammar/

Do you need information or projects to help students master the art of grammar and writing? This site lists beneficial information on almost every writing circumstance or problem that might arise in the writing process. Click on the interactive quizzes link and have students work on a particular aspect of the writing process.

MS: A Language Arts Website
http://students.resa.net/stoutcomputerclass/2la.htm

This is an awesome site geared specifically to middle school students. There are many different projects that will take your class to a new level. Have your student create stories from art. Tell students to write a story without the use of adjectives and then go back and see why adjectives are so important in the writing process. Create different endings for fairy tales and share with the class.

NCTE Teaching Ideas
www.ncte.org/teach

This site offers practical teaching ideas for all Language Arts teachers. There are links for journalism, literature, reading, technology, writing and vocabulary. Teachers provided all the information for this site. This ensures that the ideas can be easily implemented in the classroom. You can also search this site by specific topic to make your search that much easier.

The Quotations Page – Your Source for Famous Quotes
http://www.quotationspage.com/

Interested in finding a site with over 15,000 searchable quotes? Search through by subject, author, quotes of the day, motivational quotes and more. Interested in even more links for quotes? There is even a link for fifty-one other quotes and their sources. Don't forget to check out the special features section with information on featured authors and topics, including holidays and other special events.

Resources for English Teachers
http://jawbone.clarkston.wednet.edu/pages/English.html

Do you want a site where you can find fun activities, grammar guides, writing prompts, lesson plans, speeches and more? This is a great starting point where English links are described and easy to find on one page.

S.C.O.R.E. CyberGuides
http://www.sdcoe.k12.ca.us/score/cyberguide.html

This site is a great addition to the 7th grade curriculum. CyberGuides are described as "supplementary, standards-based, web-delivered units of instruction centered on core works of literature. Each CyberGuide contains a student and teacher edition, standards, a task and a process by which it may be completed, teacher-selected web sites and a rubric." There is supplementary material for Bull Run, Canyons and Catherine Called Birdy in addition to creative project ideas. You can also find some other great material such as the Civil War Literature Circles Virtual Museum that will be the favorite of Mrs. Costello, Mrs. Coleman and Mrs. Bills. The eighth grade teachers should also browse this site for awesome ideas to enhance their curriculum. You can thank Amy Flemming for submitting this fabulous site.

The Teacher's Resource Center
http://www.randomhouse.com/teachers/index.html

Looking for new ideas about ways to teach award-winning books? Seeking exciting ways to bring literature alive for our student? Interested in hearing authors, such as Louis Lowry and Phyllis Reynolds Naylor, talk about writing and their newest books? You will find this in addition to indexes based on alphabetical title, author/illustrators, themes, interdisciplinary grades, awards and even reluctant readers.

The Underground Railroad @ nationalgeographic.com
http://www.nationalgeographic.com/features/99/railroad/

Amy Flemming submitted this Underground Railroad virtual tour site that is used in conjunction with the teaching of Bull Run. Students can make decisions, as if a slave, and see how their life alters based on these decisions. This is a fun and exciting way to teach about slavery and the works of such great people as Harriet Tubman.

Web English Teacher
http://www.webenglishteacher.com/

This is a great site for all English teachers. Lesson plans, WebQuests, biographies, e-texts, puzzles, classroom activities, information on grammar, mechanics and usage, interdisciplinary projects, myths and folklore, vocabulary, writing, speech information, poetry, phonics, journalism, critical thinking, book reports, and more. Is there anything else that an English teacher might want? I probably forgot to add it in the description because it is probably in this site.

Write Site
http://www.writesite.org

This site is a multimedia language arts curriculum that makes the process of telling a story fun. Students take on the role of journalists where they generate leads, gather facts and write stories using the tools of real-life journalists. It is especially designed for middle school students with instructional activities designed to improve students' skills while helping you to integrate technology into your classrooms.

The Writing Center
http://www.researchpaper.com/writing.html

Looking for some good writing tips? This site is designed to help you improve the style and presentation of reports. There is useful information on everything from taking good notes to choosing the best objectives. Categories include: General Writing Concerns, Writing Research Papers and Citing Sources, Writing in the Job Search, Professional Writing, English as a Second Language, Parts of Speech, Sentence Construction, Punctuation and even Spelling.

MATH RESOURCES

Awesome Library - Mathematics
http://www.awesomelibrary.org/Classroom/Mathematics/Mathematics.html

Are you a Math teacher who would like to have a library of Math information available online all in just one site. This site offers fun Math games, lesson plans, search engines, online calculators and innovative projects. Also find great worksheets on your exact grade level or topic.

Discovery School's WebMath: Instant solutions for your math problems
http://school.discovery.com/homeworkhelp/webmath/

This impressive math site is set up to provide computerized step-by-step tutorials on most individual problems in almost any math topic. The goal of the creators of WebMath is "to give a student immediate help over the Internet with the particular math problem they are on." Once on this site all you have to do is click on the type of math problem you are working on, enter your math problem and click for an explanation of how it's done and the answer. This is a great site for students who are absent from school and need an explanation on how to work out a math problem.

Eisenhower National Clearinghouse: Math Topics - Lessons and Activities
http://www.enc.org/weblinks/lessonplans/math/

This site offers thousands of teaching materials for all mathematical classes. There are lesson plans, web links, professional resources, reference sources and professional development information that will offer a comprehensive library on mathematics. Check out the digital dozen link for unique and innovative mathematical lessons and activities that can turn your classroom into an unforgettable experience.

Math-abundance
http://library.thinkquest.org/20991/home.html

A ThinkQuest site designed by high school students, this web site offers assistance on the subjects of Pre-Algebra, Algebra, Geometry, Algebra II, Pre-Calculus and Calculus. Sample problems, tutorials and quizzes are given to show you how to complete various problems. There is also a formula database, math links and a message board for assistance on problems. For the students who needs extra help or as a means of review, this site is a great way to practice problems on the Internet.

Mathematics Archives – K-12 Teaching Materials
http://archives.math.utk.edu/k12.html

This is a great site to find information on lesson plans, software, contests and competitions, professional development and ways to incorporate technology into the curriculum. This site is quite expansive so keep on scrolling down to find endless information on new and exciting activities.

Math Goodies
http://www.mathgoodies.com/

This site offers interactive lessons, homework help, puzzles, calculators, worksheets and forums. There are three main links for parents, students and teachers. The teacher link provides easy access to other sites such as articles on Math education, discounted books and pertinent software.

Math in Daily Life
http://www.learner.org/exhibits/dailymath/

What are the odds that you will win the lottery? How much does your credit card really cost you? In school most students question how they will use basic mathematical concepts throughout their lives. The average person uses math at least three times a day. Learn how math impacts your daily decision making processes. See how math plays a role in cooking, home decorating, savings and retirement decisions.

Math Teacher Link – Professional Development Consortium for Mathematics Teachers
http://mtl.math.uiuc.edu/

This website is designed to deliver professional development opportunities and classroom resources to teachers of mathematics, statistics, and related subjects at the high school and lower division college levels. This site includes a classroom resource bank, organized by course topics, where useful information to teachers is only a click away. It also offers a variety of math links that are updated on a daily basis.

The Math Forum Internet Collection Library
http://mathforum.org/library/

This comprehensive web site offers information and links on any mathematical topic imaginable. Countless links are available on each individual topic to serve as reference points. You are able to search by topic area or by elementary, middle school, high school, college and research. It is amazing how many different mathematical links and information sources are only a click away as you browse the site. Try the problem of the week for students who are ahead of the rest and need to be challenged.

Money Matters
www.thebritishmuseum.ac.uk/worldofmoney/index.html

This site explores the history of money, how it is made and how it has affected humanity. There are games, timelines and graphics to add depth to this interesting resource.

Mrs. Glosser's Math Goodies
http://www.mathgoodies.com/

This is a great website that features interactive math lessons that allow students to interact with the webpage at their own pace. This site has many other resources including a Math Chat, links, tips, puzzles and other fascinating ideas. New material is added to this site all the time to add to the value of this site for Math teachers.

Puzzling and Perplexing Problems
http://sln.fi.edu/school/math/

This site offers seasonal Math topics that make your students think critically and research. There are fun activities that include super bowl summaries, women's history month, bewitching problems and batter up to name a few. Make your students take their critical thinking development to a new level.

Ruler and Compass
http://www.geocities.com/literka/

This is an interactive site where teachers can download programs for free that can be used in class. You can create geometrical constructions, build polyhedrons, unearth a planet's trajectory and view programs on fractions and equations. This site enables you to make Math more hands-on without purchasing expensive programs.

SOCIAL STUDIES RESOURCES

Academy of Achievement
http://www.achievement.org/

This is one of those sites that can change your life. The Academy of Achievement brings you face-to-face with the extraordinary individuals who have shaped the twentieth century. It is an amazing collection of people and ideas that fill you with inspiration, encouragement and the will to achieve. Meet the leaders, discoverers and creators who have shaped the world in which we live.

Central Intelligence Agency: Director of Central Intelligence
http://www.odci.gov/cia/publications/pubs.html

This site offers updated information on publications and reports supplied by the Central Intelligence Agency. An extremely useful part of this site is the World Factbook from 2001 that offers a comprehensive resource of facts and statistics on more than 250 countries and other entities. Other topics of interest are the factbook and overview of the Central Intelligence Agency's organization, history and mission, identification of the chiefs of state and cabinet members of foreign government, as sell as CIA maps and publications updated through 2002.

Country Reports, for Countries Around the World!
http://www.countryreports.org/

This is a great site for country information from around the world. There is information on all the world countries, country flags, current weather, reference maps and more. Every teacher who discusses other countries should include this site as a weekly reference source. The material is updated each and every year so that all the information is always current.

A Cybrary of the Holocaust
www.remember.org

Is the Holocaust part of your curriculum? This is a great website where you can find lesson plans, stories of witnesses, project ideas and links to other Holocaust sites on the web. This is a comprehensive library of all the material you need to expand your teaching.

Distinguished Women of Past and Present
www.distinguishedwomen.com

This site offers biographies of women writers, educators, scientists, heads of state, politicians, civil rights crusaders, artists, entertainers and other women who have transformed the world in which we live. You can search by either name or subject area to locate some of the most influential women the world has ever known.

E-Conflict
http://www.emulateme.com
This site tries to eradicate conflict by building cultural awareness. This 1,500-page site offers a wealth of information about the world's nations including maps, flags, national anthems and monthly quizzes.

Geography from Space
http://www.nasm.edu/ceps/gaw/gfsintro.htm
Michelle Marhefka labeled this as "a really neat website for Geography." Test your knowledge of Geography and remote sensing as you try to identify countries, states, mountains and a host of other landforms taken from space. There are various quizzes that an entire class can take to test their geographic awareness.

Geography Home Page
http://geography.about.com/
Mr. Wagner and Mr. Sullivan should definitely check out this site to bring a new material into the already incredible 7th grade Geography curriculum. There are great links for blank outline maps, census and population material, disasters and hazards, clip art and more. It is a great addition to the existing curriculum and only a click away.

Geography World
http://members.aol.com/bowermanb/101.html
This site provides access to a large amount of information and to many different aspects of Geography. The content are separated into topics such as erosion, plate tectonics and weather and also covers issues such as population, the environment and conversation. It has links to maps, games and quizzes that you could easily incorporate into an interactive lesson plan. Younger students are excited about the information on earthquakes, tsunamis and by space photos. There is information for older students on the field of Geography including careers, world records and Geography in the news. This is an excellent resource for all Geography teachers, especially Mr. Wagner and Mr. Sullivan who are always looking for new ideas.

The Historical Atlas of the Twentieth Century
http://www.erols.com/mwhite28/20centry.htm
This is an incredible atlas that illustrates how the Internet can be used to integrate topics such as history, geography and economics in a virtual way. You can move through world maps and watch colonialism go away and autocracy lose, as colors change through the decades. The Infant Mortality page makes clear the progress in much of the world. There are many more subjects and much more work on this world tour through the century. This is a must for everyone.

The History Net: Where History Lives on the Web
http://www.historynet.com/

The self-proclaimed web's best history archive, this site offers a wide array of information separated into distinct topics such as: 20th century history, African – American History, American History, Ancient/Classical, British History, European History, Medieval History, Military History and Women's History. In addition to these informative links, there is also the HistoryNet daily quiz, Today in History and links to many great historical pictures.

K-12 History on the Internet Resource Guide
http://www.xs4all.nl/~swanson/history/index.html

Every history teacher should consult this site for innovative ways of incorporating technology in the classroom. Certain aspects included in the site are a global classroom, impersonation projects, multicultural calendars, WebQuests, tele-field trips, virtual museums, collections of primary documents, an on-line library and links to other history web sites. A very useful link is entitled, Using the Internet to Teach History: Articles and Online Presentations. This site will surly help in the incorporation of technology into a curriculum.

Kids Voting USA
www.kidsvotingusa.org

This is a great site to help students understand all the intricacies of the voting process. Curriculum activities model democratic practices through cooperative learning structures, group problem solving and active, student-centered experiences. You'll discover activities that are user-friendly, compatible with academic standards and allow for truly individualized lesson plans.

Library of Congress
www.loc.gov

Forget about teaching class for a few days and allow your students to browse around this site so learn about America's history. There is information on America's culture and history, world culture and history, online galleries and even interactive games. Check out the teacher link where you can find lesson plans, curricular themes, critical thinking activities, community projects and professional development information.

Lists of US Presidents
http://www.fujisan.demon.co.uk/USPresidents/preslist.htm

Are you looking for information on the presidents of the United States? This site is a presidential trivia lover's delight. There is personal information such as the month and day of birth, state and place of birth, number of brothers and sisters, family, military or public service and even presidential election details.

More Black History Month Sites
http://www.seattletimes.com/mlk/classroom/MLKlink.html

This site has outstanding links for sites highlighting Martin Luther King, Jr., Black History Month, Civil Rights and African American resources. It is an excellent resource for Black History Month activities.

Mr. Jenkin's History Links
http://www.snowcrest.net/jmike/

This wonderful site is sure to help students and teachers limit the endless search for quality academic historical research material. This site provides a number of excellent topics, awesome resources and some cool links. There is also a link to the History Ring and the Student Resource Ring that visitors find quite interesting. This is one of those "must see" sites that illustrates just what teachers can do to provide that extra for their students.

National Geographic
http://www.nationalgeographic.com

This Social Studies favorite has set a new standard by including many interesting facets to the site. Now you can have your class ride on a sailing simulator to compete in the Geo Spy game. Combine these cool links with endless information on the world in which we live and this equals a formidable site. Check out the Underground Railroad Virtual Tour that has been used by Mrs. Flemming when teaching Bull Run.

The PBS Kids Democracy Project
http://www.pbs.org/democracy/kids/

All 8th grade teachers should bring their students to this site to find out what role democracy and our government plays in their daily lives. The interactive site allows students to click on various aspects of our society and culture in order to see how they are affected by the government. There is also information for inside the voting booth and a cool link for being president for the day. This is an exciting way to teach students about the government that we take for granted.

Remembering Slavery
http://www.uncg.edu.~jpbrewer/remember/

In the late 30's and 40's, federal and private agencies sent interviewers across the South in an effort to document music and culture. Among those interviewed were African –Americans who had been born into slavery and had lived through the Civil War. Now, using this website, visitors can share the experiences of former slaves as they tell in their own words of their lives in bondage.

This Week in North American Indian History
http://members.tripod.com/~PHILKON/index.html

This is a site that lists over 3,000 historical events that happened to or affected the indigenous peoples of North America. You will find tribal name meanings and alternative names, Indian "moon" names and links to thousands of other sites. There is also a "Dates" section with listings for historical events on a day-by-day basis. This site's creator is a member of the Cherokee Nation of Oklahoma. This is an awesome site for students, teachers or others interested in Native American history.

The University of Oklahoma College of Law: A Chronology of US Historical Documents
http://www.law.ou.edu/hist/

This is an excellent site for a multitude of primary sources ranging the signing of the Magna Carta in 1215 to the present with George W. Bush's 2002 State of the Union Address. Social Studies teachers are sure to find it easy to locate documents that will surely add to the analysis of many great time periods in our nation's history.

WWW Virtual Library – American Indians
http://www.hanksville.org/NAresources/

This is a comprehensive website for information on almost every aspect of the Native American culture. Just click on a link for such items as culture, music, education, language and many more to discover more about Native Americans.

World War I: Trenches on the Web
http://www.worldwar1.com/

This site offers information on anything that you aspire to know about "one of the worst calamities of modern history." There are many links within the site ranging from discussion forums to the Library of Congress reference center. Anyone that teachers or has an interest in World War I should search the site for excellent resources and stories that it provides.

SCIENCE RESOURCES

Back to Nature
www.enature.com
This nature Web guide contains an extensive listing of field guides for animals, plants, flowers and seashells. Visitors can check with wildlife, birding and backyard experts and search the Web for news articles and photography related to their favorite species. Other features of this National Wildlife Federation site include step-by-step guides to create backyard habitats and weekly news features.

Dino Lab
www.jpinstitute.com
Do you incorporate research on the scientific method into your Science curriculum? This site includes lesson plans and student activities in which students develop a greater understanding of science through uncovering dinosaurs. An online encyclopedia, dinosaur-themed activities and games, the latest in dinosaur news and additional links are used to teach about the intricacies of science.

Eisenhower National Clearinghouse: Science Topics - Lessons and Activities
http://www.enc.org/weblinks/science/
This site offers thousands of teaching materials for all Science classes. There are lesson plans, web links, professional resources, reference sources and professional development information that will offer a comprehensive library on almost any Science topic. Check out the digital dozen link for unique and innovative Science lessons and activities that can turn your classroom into an unforgettable experience.

Exploratorium: The Museum of Science, Art and Human Perception
http://www.exploratorium.edu/index.html
This is an awesome and interactive Science site that can keep your students, and even you, entertained for hours. This site brings science discoveries and unique experiments to your fingertips. Browse around and entertain yourself with many interesting activities. Learning Science is made fun at the Exploratorium. They motivate learners by piquing their curiosity and letting them test their own ideas. Learning results from firsthand experiences doing Science, not just reading about it.

Eye on Bugs
http://bugscope.beckman.uiuc.edu/
This site allows you to get up close and personal with insects by taking part in the Bugscope project. This is an educational outreach program that provides services to classrooms to they may remotely operate a scanning electron microscope to image bugs at a high magnification. This is a great way to allow every student in your class to use an electron microscope without the overwhelming expenses.

For Science Buffs
http://education.jlab.org.index.html
This site offers 16 great activities that will have your students answer a number of intriguing questions such as: How do scientists measure the size of an atom? What kind of coat will keep you the warmest – one made from cotton, steel wool, or air? Various flash cards, matching games and crossword puzzles help student learn from the periodic table of elements and other science information.

For the Birds
www.enature.com/birding/migration_home.asp
This National Wildlife Federation site can help anyone become an expert on the bird species in various regions of the United States. Colorful maps help track migration patterns to understand the processes behind why birds migrate. Make areas birds feel welcome with the guide to favorite foods, types of trees and the most attractive feeder styles.

Frank Potter's Science Gems
http://www.sciencegems.com/
This is a great link for endless information for Science resources. Anyone interested in the subject of Science will enjoy the intriguing resources that this site offers. Search more than 14,000 Science resources sorted by category, subcategory and grade level. Don't forget to click the link for more than 70 WebQuests or special links to the rest of the Web.

K-12 Science Ed. Resources
http://www.amasci.com/edu.html
Would you like links to everything from kids' build-it projects to free science materials? This comprehensive Website offers a variety of materials on a multitude of Science topics. Do students need help with their homework, click on the homework help sites. Keep on browsing for endless Science information.

KidsHealth
http://www.kidshealth.org/index2.html
This is a website devoted to the health of children and teens. Created by the medical experts at The Nemours Foundation, KidsHealth has loads of accurate, up-to-date information for students, parents and teachers about growth, food and fitness, childhood infections, immunizations, lab tests, medical and surgical conditions and the latest treatments. You will find health games, How The Body Works animations, the KidsVote health poll and tons of other interesting information.

Lawrence Livermore: Education: Fun Science for Kids
http://www.llnl.gov/llnl/03education/science-list.html

This is a really neat site that middle school Science teachers should definitely explore to make their classroom a bit more kid-friendly. Click on the ingenious links that range from learning about how "stuff" works to classic science experiments from "stuff" in your kitchen. Don't forget to check out the exploratoriums and virtual field trips that will make your class one that students will remember forever.

Practical Uses of Math and Science (PUMAS)
http://pumas.jpl.nasa.gov/

This site will answer the constant student question, "When are we going to use this?" or "Why do we have to learn this?" These interesting and relevant projects will add a new element to your classroom that students will find interesting and practical. Sample topics include: Why don't clouds fall out of the sky? What is the wind chill? How far can you see? Automatic windshield wipers.

The San Francisco Exploratorium
http://www.exploratorium.edu/

This is one of the world's best science museums with on online presence. Teachers should use this as an online field trip and have students browse around the site and all of its attributes.

Teaching with Energy
www.eia.doe.gov/kids/index.html

This site can help students understand the link between solid waste and energy, the history of garbage, how landfills work and related topics. There are even biographies of pioneers of the energy field and important energy news that you can use. You can find curriculum guides, science fair project information, an energy conversion chart and more.

The Young Oxford Encyclopedia of Science
http://www.oup.co.uk/oxed/children/yoes/sites/

This incredible site is a great one for finding countless links to a variety of Science topics. Included in this site are links for such topics as plants and animals, humans, the Earth, atoms and molecules, energy and forces, light and sound, computers and ICT, industry and technology, inventions, people in science and general science sources. Click on each link and it will take you to a host of Internet sites relevant to the topic chosen.

Welcome to Jason
http://www.jasonproject.org/

This site is geared towards teaching Science, Math and Technology through exploration and discovery. Students and teachers work with scientists and researchers to explore and study in research locations. This is a multidisciplinary program that sparks the interest of the students. Assessment tools are provided to monitor students work.

OTHER DISCIPLINES

ArtsEdNet
http://www.getty.edu/artsednet/
This is a great site that supports the needs of the K-12 arts community. If focuses on helping arts educators, general classroom teachers using the arts in their curriculum, museum educators and university faculty involved in the arts. There are excellent lesson plans and curriculum ideas, image galleries, exhibitions and more.

The @rtroom
http://www.arts.ufl.edu/art/rt_room/index.html
This site offers new and exciting activities to your teaching of art. There are such items as art sparkers, outrageous thinking, artifacts, and a gallery of links and other projects. This will be a great addition to your already exciting curriculum.

CARTS
http://www.carts.org.index.html
This site is geared towards Cultural Arts for Teachers and Students (CARTS). This is a collection of online resources pertaining to traditional arts, folklore, anthropology, oral history and community-based education. It is designed to serve the needs of K-12 educators, students and community members interested in developing meaningful links between school curricula and local cultural traditions.

Creative French Teaching Methods
http://www3.sympatico.ca/heather.zaitlin/TEACHER.HTM
This is a great site for teachers to visit and discover some new methods that colleagues are using to improve French teaching and students' learning abilities. This site is specifically designed for the French teacher. It provides links to resource pages, curriculum-planning ideas and class activities that students are going to enjoy.

The Drama Teacher's Resource Room
http://www3.sk.sympatico.ca/erachi/
This site strives to make it easier for teachers to encourage creative and challenging experiences for students interested in drama. Travel backstage to the resource room to find articles on costumes, props, set design, lighting and scenic painting. There are also many lesson plans to make your quest much easier.

Foreign Language Learning Center
http://fllc.smu.edu/index1.html
This award-winning foreign language site offers links not only to French, German, Italian, Russian, Japanese and Chinese sites but also to Spanish, with Latin American, Mexican, or European Spanish versions. This could be a language teacher's dream site.

Foreignword.com
http://www.foreignword.com/tools/dictsrch.htm
This is a great site that offers translating dictionaries for over 63 languages. Would you like to have your students learn language skills in a fun and exciting way? Just choose the language that you would like to translate to and get down to business. This is also a great way to check and see how well you have translated selected material for students.

Free Translation.com
http://freetranslation.com
Use this site to get a translation where you can get the "gist" of foreign language texts and web pages. This is an easy way to understand a variety of languages. This is as close as you will get without the use of a translator.

French and French Language
http://web.cnam.fr/
This is a site that will allow students studying French to see the direct connection between the language development and valuable information. A major university in France maintains the site with hyperlinks to advice that could help those traveling around France or just looking for information.

The Internet TESL Journal
http://iteslj.org/
This site offers articles, research papers, lesson plans, classroom handouts, teaching ideas and links for incorporating ESL programs into your school. Useful ESL sites are limited and this one offers a considerable amount of material that you can use in your classroom.

K-12 Resources for Music Educators
http://www.isd77.k12.mn.us/resources/staffpages/shirk/k12.music.html
Are you a music teacher and interested in countless websites to expand your teaching? This site offers websites for all types of musical educators including band, vocal/choral, orchestra, classroom music and valuable sites for all musical educators. You are sure to find a site that will pertain to your exact interest.

National Gallery of Art
http://www.nga.gov/exhibitions/webtours.htm
Have you ever wanted to take your class to an art gallery but did not have the time or money to do so? This site has several virtual tours of famous art galleries in the United States. It is a great place for classes to learn about the history of our great country through paintings and impressions of famous artists.

PELinks4U
www.pelinks4u.org

This is one of the most comprehensive Physical Education sites on the Internet. It has everything you need to increase your knowledge of the field and offers substantial resources all on one site. There is information on adaptive PE classes, coaching and sports, elementary PE, health, fitness and nutrition, interdisciplinary PE, secondary PE, and even ways to incorporate technology into your classes. Click on the link to see more sources to find lesson plans, unit plans and more.

SERI
www.seriweb.com

This is your site for Special Education resources on the Internet. It has information on countless disabilities and even information on the gifted and talented. There are countless links for such topics as inclusion, the incorporation of technology, learning disabilities, behavior disorders and more. Click on information that will improve your techniques for special education students.

Biographical Data

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