STRATEGIC PLAN FOR TECHNOLOGY IN EDUCATION

THE ARCHDIOCESE OF BALTIMORE
DIVISION OF CATHOLIC SCHOOLS

October 18th, 2004

Developed by: The Technology Committee of the Division of Catholic Schools of the Archdiocese of Baltimore

In Appreciation

The Strategic Plan for Technology in Education could not have been accomplished without the generous gift of time and talent of the original Task Force for Technology in Education and, also, the efforts of the 2002 Technology Committee. We thank them for their vision concerning the role of technology in education and for their commitment to continued academic excellence in our schools.

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Prologue

In April 1996, the Archdiocese of Baltimore published its first Strategic Plan for Technology in Education. The plan identified five strategic areas fundamental to the planning process; Survey and Evaluation, Curriculum Integration, Professional Development, Administrative Support, and Facility Planning. The original Technology Plan was developed when the concept of planning for the integration of technology into education was in its infancy and planning resources were limited, yet, the core strategic areas of the plan have endured the test of time and remain the foundation of this plan. Today, we take advantage of technology planning resources that have evolved from the shared experiences of educational institutions throughout the country as well as from our own experiences within the Archdiocese of Baltimore. The ISTE National Educational Technology Standards (NETS), in particular, have been cited extensively in the revised plan to enhance value in the core strategic areas.

Since 1996, many changes have occurred within both the Archdiocese and the Division of Catholic Schools to enhance the integration of technology into the educational environment including, but not limited to those listed below:

- The Division of Information Services today is intricately involved in guiding and advising schools in support of its mission "Connecting the People of God". The Division of Information Services has become an invaluable resource for providing expertise not generally available within all schools and parishes.
- The archdiocesan web site (http://www.archbalt.org) was established to support the strategic mission priorities of the archdiocese: evangelization, liturgy, education, service, and stewardship.
- The School Technology Coordinator, a new position, serves as the liaison between the divisions of technology and of Catholic schools, promotes communication among the Archdiocese of Baltimore, schools, and the community and assists the Director of Curriculum and Professional Development with the integration of technology into the curriculum, a concept integral to the Strategic Plan.
- PowerSchool, a division of Apple, has been selected to provide for the administration of student information. This initiative is driving technology utilization in the schools.
- The availability at local colleges of advanced degrees in educational technology, and credit and certificate programs in professional technology development have resulted in increased technology understanding and improved curriculum integration of technology.

In his 1953 Christmas message, Pope Pius XII remarked "The Church welcomes technological progress and receives it with love, for it is an indubitable fact that technological progress comes from God and, therefore can and must lead to Him." As people committed to Catholic Education, we recognize the importance of the words of Pope Pius XII and our responsibility to educate our youth using all of the tools at our disposal. We are today continuing a wondrous adventure resulting from rapid technological progress. Emerging technologies are dramatically changing the

commercial, scientific and educational communities. Indeed, technology has led to a redefinition of the traditional concept of community. The ability to move in a virtual environment to distant parts of the world has removed the physical confines of geography and made the global community readily accessible. Theoretically, no point on earth is more than 1/8th of a second away.

The exchange of information and ideas, the dialogue we call learning, is the core of education. It is the ready access to information that is changing the way our teachers teach and our students learn. The natural method of teaching begins with the student, continues with the student and ends with the student. This is reflected in today's classroom where increasingly the emphasis is on active learning, requiring more involvement on the part of the student. Now, more than ever, our students must develop the skills of critical thinking and problem solving if they are to transform information into true knowledge and understanding. The traditional classroom, where teaching is accomplished by lecturing and learning by listening, is an essential starting point, but limits learning to the information presented by the teacher. Access to information allows a student to go beyond what is presented in class. In Information Literacy in an Information Society: a Concept for the Information Age, an article available on the Internet through the ERIC Clearinghouse on Information and Technology (IR-97), Charles Doyle described the skills needed for a person to be "information literate". In essence, a person needs to be able to

- identify a problem
- ask questions relevant to the problem
- develop a search strategy
- access complete and accurate information
- evaluate, organize and integrate the information
- use the information in critical thinking and problem solving.

The skills described by Doyle are not different from those necessary for a student to pursue independent study in a non-technological environment. What is different is the frequency with which a student must use these skills and the level of proficiency in these skills that will be required not only in the classroom, but in the workplace of the twenty-first century.

Vision Statement

It is the vision of the Division of Catholic Schools of the Archdiocese of Baltimore that through the integration of technology into the curriculum, both formally and informally, schools in the Archdiocese of Baltimore will enhance the instruction of all students, enabling them to achieve their maximum potential, and preparing them to excel in an increasingly technological and global society. To be most effective, this technology must not only be available to the schools, teachers, and students, but also to parents, parishioners, parishes, and the Archdiocese.

Mission Statement

The mission of the Division of Catholic Schools of the Archdiocese of Baltimore was to update the Strategic Plan for Technology in Education of the Archdiocese of Baltimore. Understanding that technology is a viable and increasingly essential educational tool, the plan outlines methodologies necessary to incorporate technology into the curriculum, and to promote opportunities for students, teachers, administrators and parents to participate in an information society. Specifically, the plan provides strategies and tactics in the areas of curriculum integration, professional development, facilities planning, and administrative support and is meant to guide schools as they develop their own technology plans.

Developing a Plan

The challenge for our schools remains to continually find or develop creative and effective ways to use technology to enhance education. An extensive survey to evaluate the state of technology in the schools was performed as an initial step in developing this plan (Appendix A). The Strategic Plan provides guidelines for schools as they consider implementing technology. The implementation process, however, must be the responsibility of the individual schools. If needed, assistance will be provided by the Division of Catholic Schools of the Archdioceses of Baltimore. For schools to properly implement and utilize technology, a number of items need to be considered.

* The development and implementation of a School Technology Plan requires the joint efforts of the individual schools, the Division of Catholic Schools, and the Division of Information Services of the Archdiocese of Baltimore. The School Technology Coordinator, the liaison between the divisions, promotes communication among the Archdiocese of Baltimore, schools, and the community. Additionally, the position of Director of Curriculum and Professional Development was created within the Division of Catholic Schools to lead the process of curriculum integration of technology, a concept integral to the Strategic Plan.
* Curriculum needs should drive technology planning. When developing a technology plan, it is imperative that any consideration of technology be based on a needs assessment to determine the requirements for technology. Each school should consider their own curriculum needs, space limitations, and the critical mass of technology that might be required for optimum utilization, before deciding how best to distribute technology.
* Each school should:
    - o designate a technology coordinator. This person should be provided the training necessary to understand, plan, and implement technology into the curriculum.
    - o establish a technology committee to oversee technology planning for their school. The technology committees should evaluate the current facilities of the school, establish the needs of the school, with input from the faculty, identify technology and planning resources, and develop a one, two, and five year technology plan, including vision and mission statements. The structure and responsibilities of the School Technology Committees and the Archdiocesan Technology Committee for Education are further discussed below.

School Technology Committees

Each School Technology Committee must:

Pull together a team of diverse people to develop a school-wide plan. A team of

people including teachers, technical personnel, parents, students, and community members, as well as the principal, should be established.

Perform a needs assessment of the school. The core curriculum must reflect the needs and goals and should be the focus of the technology goals. This will allow technology to be an effective tool to aid classroom instruction and will ensure that the technology acquired is necessary to meet a well-defined need.

Establish the objectives for each school based on The Archdiocese of Baltimore Strategic Plan for Technology in Education.

Correlate the objectives with timelines and finances. The budget and the objectives for technology should be interrelated and technology purchases made with a specific objective in mind. Develop one, two, and five year plans of implementation for technology. It is impossible to do everything all at once, but this schedule of implementation will allow schools to test prototypes, evaluate the results, receive input from faculty and students, and make decisions for future technology based on prior experience. As technology is rapidly changing, this process will also allow flexibility for purchasing and utilization of the most productive and cost-effective technology.

Identify planning resources (Appendix B).

Identify funding resources. (See Administrative Support Section - page 31 for details) Explore grant funding for technology in concert with each school's Development Office and/or the Archdiocesan Development Office.

Include teachers in the entire process. Members of the Technology Committee, working in concert with the teachers can evaluate the curriculum goals and recommend hardware and software to support the curriculum.

Research purchases carefully, being certain they are necessary to accomplish the committee's objectives. Be consistent in purchasing and do not merely buy whatever is on sale. The dependability of the hardware, and the support of the hardware provider are more important than price alone, and will ultimately be more cost-effective. Hardware designed for business is often more reliable and more easily networked than discounted hardware designed for home use.

Make software purchases complement your curriculum objectives. Software selection should be considered similarly to textbook selection. For example, the proper software and hardware could allow students to view satellite images, study biology, perform research projects and analyze their results, or learn a foreign language.

Use local resources. Local colleges may assist in educating teachers to use technology in specific disciplines, or they may allow students to work with the schools as part of their college requirements. Parents or retired persons with technical skills may also be willing to assist schools with their technology needs.

Increase the number of people who can educate others. Staff development should be ongoing, easy, and available. Designate a technology coordinator and provide this person with the education necessary to understand, plan, and implement technology into the curriculum. The technology coordinator can assist in the education of the other faculty. All technology instruction should emphasize how technology can be used to enhance the curriculum. Do not merely teach about technology. Teachers educated about technology can better formulate their own instructional strategies, thus improving the quality and speed of incorporation of technology into the curriculum. Courses teachers can take at local colleges for credit should be explored. There should be incentives for teachers to obtain technology education.

Ensure that the technology coordinator, or another member of the technology committee, attend a quarterly Archdiocesan technology meeting in which every school in the archdiocese is represented. The Archdiocesan technology meeting will allow the schools to share ideas and experiences and to work towards common goals.

Purchase hardware with extended warranties, usually at least three years. Repair broken or damaged equipment in a timely manner. Establish contacts with reliable companies capable of fixing your equipment. Keep an inventory of your hardware and software, including the date of purchase. This will be useful for repair and replacement of hardware and software. For teachers to use technology in the classroom, the equipment must be reliable.

Establish a migration/replacement pattern for equipment as it ages. This will ensure the maximum utilization of the equipment throughout its lifespan.

Archdiocesan Technology Committee for Education

The Archdiocesan Technology Committee for Education Must:

Pull together a diverse group of people representing all areas of the Archdiocesan and business communities. The Instructional Technology Facilitator should participate in this committee.

Review and modify as needed the "Strategic Plan for Technology in Education." The Strategic Plan is a living document that will evolve during the one, three, and five year implementation process.

Implement the directives established by the Technology Committee under the guidance of the Division of Catholic Schools.

Encourage the full utilization of "Archbalt", as a means for the Archdiocese of Baltimore, schools, parishes, and the community to communicate with each other and with the global community. Develop a process for teachers to discuss

technology and educational issues with each other. Educational discussion groups for specific disciplines should be established.

Continue to explore, in concert with the Development Office of the Archdiocese of Baltimore, alternate types of funding for staff development and the integration of technology across the curriculum.

Initiate, in concert with the Development Office of the Archdiocese of Baltimore, partnerships with businesses and other organizations to serve as resources to all schools.

Explore ways to offer ongoing, intensive Professional Development to all school personnel on the use of technology. As part of this training, identify model schools where technology and curriculum integration of technology are well developed.

Recommend contractors for the repair and maintenance of technology and the retrofitting of educational facilities.

Investigate group pricing, site-licensing, etc for technology.

Assist schools with software evaluation and make recommendations on software purchasing.

Explore, with the assistance of the Division of Catholic Schools, ways to offer guidance for all administrators on the legal and ethical use of software and hardware as part of their professional development. A sample Ethical and Moral Use Policy for Technology as well as policies established by the Division of Information Services, Department of Management Services, Archdiocese of Baltimore for "Computer Use & Internet Policy" and "Computer Access Disclosure Statement" can be found in Appendix C.

Provide, through the Development Office of the Archdiocese of Baltimore, Grant Writing Workshops annually for Boards, Administrators, and/or School Coordinators to enhance their ability to apply for technology funding.

Disseminate information to schools on funding available through grants, foundations, and federal programs.

Professional Development

I. Introduction
II. Major Strategies of Professional Development for Technology
A. Principal Support for Technology
B. Technology Coordinator Support for Technology
C. Teacher Support for Technology
D. Parent and Community Support for Technology
E. Inservice Education

III. References for Professional Development (Appendix D)

A. National Educational Technology Standards for Students Connecting Curriculum and Technology ISTE 2000 (ISBN 1-56484-150-2)

http://cnets.iste.org/tssa/docs/tssa.pdf - Technology Standards for School Administrators (ISTE)
http://cnets.iste.org/tssa/docs/tssa.pdf - Technology Standards for Teachers (ISTE)
http://cnets.iste.org/index2.html - Technology Standards for Students (ISTE)

B. NCATE (National Council for Accreditation of Teacher Education)

The U.S. Department of Education recognizes NCATE as the professional accrediting body for colleges and universities that prepare teachers and other professional personnel for work in elementary and secondary schools.
www.ncate.org
The NCATE standards lie at the heart of quality teacher preparation. ISTE has developed performance assessment standards for initial and advanced educational computing and technology programs including: (1) the technology facilitation initial endorsement; (2) the technology leadership advanced program; and (3) the secondary computer science education preparation programs. Institutions offering one or more of these programs should respond to the corresponding set of program standards.
http://cnets.iste.org/

Introduction

A firm understanding of technology is prerequisite to the integration of technology into a school setting. Teachers and administrators who are comfortable with technology and have prior education and experience with technology, are more likely to encourage and implement technology integration. Thus, it is imperative that a well-defined plan for technology education be developed for all faculty and staff employed by schools in the Archdiocese of Baltimore. Educators must be aware of both the advantages and limitations of technology in education to better use technology in the classroom. Given the rapid advancement of technology, and the realistic limitations of time, equipment, and money, it is suggested that commercial services already in existence be explored. Seminars, workshops, and courses offered by local colleges and commercial companies provide state-of-the-art instruction that has been developed by personnel who have experience with technology and the necessary resources.

Major Strategies of Professional Development for Technology

Strategy A. Principal Support for Technology

Tactics:

1. Principals should become informed and committed users of technology. They need to possess a full understanding of the value of integrating technology into the learning process.
2. Principals should dedicate sufficient funds from the school budget to support technology implementation, planning and education.
3. Principals must provide leadership in monitoring and supervising the implementation of technology in their schools.
4. Principals must be active in decisions concerning technology in their schools.
5. Principals should consider technology experience when hiring new faculty members.
6. Principals should allot regularly scheduled time for staff development in technology.
7. Principals should demonstrate skills as itemized by the ISTE Technology Standards for School Administrators, which are found on http://cnets.iste.org/tssa/docs/tssa.pdf and which are listed below.

Strategy B. Technology Coordinator Support for Technology

Tactics:

1. Technology Coordinators should be skilled and committed users of technology, with a full

understanding of the value of integrating technology into the learning process.

2. Technology Coordinators should assist by identifying and developing opportunities to implement technology into the content areas. They will monitor and aid in the integration of technology into classroom instruction, and serve as the technology expert who advises the faculty on technology issues.
3. Technology Coordinators will provide "front-line" support for the use of technology by the classroom teacher. They will assist the teachers in the implementation and maintenance of appropriate technology.
4. Technology coordinators should maintain and expand their knowledge and skills in the utilization of technology, and be active members of the school technology committee.
5. Technology Coordinators should be the focal point for identifying the needs for the technology program in their schools.

Strategy C. Teacher Support for Technology

Tactics:

1. Teachers should be educated and committed to the integration of technology into the learning process within the classroom. They need to attend inservice programs and workshops to learn about current technology and its uses in the classroom.
2. Teachers should avail themselves of technology advantages through the use of e-mail, online subscriptions, and additional Internet resources.

Strategy D. Parent and Community Support for Technology

Tactics:

1. Parents should support the use of technology in their schools.
2. Schools should make parents aware of the value of technology in the learning process of their children, and help them develop an interest in the use of technology as an intergenerational tool for lifelong learning.

Strategy E. Inservice Education

Tactics:

1. All teachers should remain informed about current computer technology trends.

Goals:

a. Teachers will participate regularly in education and inservice programs. All personnel are encouraged to seek personal growth in technology competency by participating in classes and workshops offered by local universities, or vendors, by attending professional conferences, and by reading journals devoted to technology in education.

b. Principals will provide regularly scheduled time for presentations on technology topics of general interest and need. Suggested topics may include creative uses of software/ hardware as well as information about new products and may be conducted by the technology coordinator.

c. Principals will provide training by professionals as needed to promote technology competency. This training may include contracting with consultants, experts, using videotapes, arranging vendor's presentations, or having guest speakers.

d. The Division of Catholic Schools should support and encourage continuing growth in technology competency by sponsoring archdiocesan-wide technology inservice days, conferences, demonstrations, training sessions by vendors, and the establishment of Archdiocesan technology demonstration sites. The demonstration sites or model classrooms should be used as inservice opportunities for visiting groups of teachers/ administrators/ technology coordinators. High schools may be used as sites for inservice opportunities for elementary schools in their geographical area.

e. Schools should earmark 30% of their technology budgets for inservice and training expenses (see Strategy B, Tactic 1 of Facilities Planning for technology budget guidelines). The budget should include funding for the release time of teachers. (This may not provide sufficient funding for some schools within the Archdiocese of Baltimore)

2. Education/inservice incentives should be offered to faculty and staff.

Goals:

a. The principals should require that teachers have a technology goal as one of their yearly goals for professional growth.

b. Evaluations of teachers and principals should include a technology component.

c. Principals should send at least one representative to a local technology workshop or convention annually.

d. Principals should provide release time to allow teachers to observe technology and/or attend professional meetings with an emphasis on technology.

e. Principal should consider other incentives such as the following:

*professional growth credit

*release time

*summer loan computers

*access to materials for use in the classroom or office
*stipends for hours spent in specific training
*personal laptop computer

3. Membership in professional organizations which provide resources and services for technology use by educators should be encouraged. Some examples of such organizations are listed below:

ISTE (International Society for Technology in Education)
NASSP (National Association of Secondary Principals)
AASL (American Association of School Librarians)
NCEA (National Catholic Education Association)
ASCD (Association of Supervision and Curriculum Development)
MICCA (Maryland Instructional Computer Coordinators Association)
and National Associations connected to disciplines such as:
NCTM (National Council of Teachers of Mathematics)
NSTA (National Science Teachers Association)...

4. Teachers should take advantage of education programs available on local campuses and online.

5. Teachers should demonstrate skills as itemized by the ISTE standards for teachers and students (Appendix D) and found on the following web sites:

http://cnets.iste.org/index3.html
http://cnets.iste.org/index2.html

Facilities Planning

I Introduction
II Major Strategies of Facilities Planning
A. Technology Education
B. Support
C. Security and Integrity
D. Workstations and Computing Environments
E. Infrastructure Development

Introduction

To assist the schools in the Archdiocese of Baltimore with developing a technology plan suited to their particular needs, the primary goals of Education, Support, Security and Integrity, Workstation and Computing Environments, Infrastructure Development, Emerging Technologies, and Assessment and Evaluation have been identified as the foundation of the Strategic Plan.

Major Strategies of Facilities Planning

Strategy A. Technology Education

Appropriate technology education must be provided to the Archdiocesan community in accordance with the technology plan for each school.

Tactics:

1. Provide technology education through a variety of systems (e.g. hands-on training classes, seminars, peer groups, computer based education and self-study modules).
2. Provide technology education according to the policies outlined in the Professional Development section of the Archdiocesan Strategic Plan for Technology in Education. Technology and inservice education should be concurrent with hardware purchases to maximize the use of the hardware during its lifespan.
3. Provide a technology orientation session for all new faculty and staff. All orientation sessions must include a statement of ethical expectations that govern the use of technology. See Appendix C for policy documents.
4. Provide access to manuals and/or computerized documentation for all technologies.

Strategy B. Support

To effectively utilize the equipment and infrastructure outlined in the following sections, it is necessary to provide and document effective support procedures and funding goals to meet the needs of the community. Measurement procedures must be developed to ensure timely and cost-effective support. Each technology committee must develop the following:

Tactics:

1. Provide recommendations for staffing, outsourcing and/or contractual services, operating resources and budget guidelines as part of the on-going operation of the school. These budget guidelines should meet minimum levels of funding. It is recommended that a minimum of 3% of the operating budget of the school be set aside for technology.
2. Provide school specific hardware, software (site licenses), and network acquisition policies and appropriate migration plans according to the workstation strategy as outlined in strategy D. Ensure that educational discounts are obtained on all purchases.
3. Develop, maintain and support a trouble reporting and evaluation procedure to facilitate prompt resolution and to assess user satisfaction of technology issues.
4. Develop a strategy to ensure a timely response to hardware, software and network problems. The objective is to respond to emergency situations on the same day or to arrange for an alternative to meet user requirements. Annual contracts for equipment repair and service should be investigated.

Strategy C. Security and Integrity

All systems and data must be secured and protected, with access restricted to authorized users to ensure physical and information integrity. The technology committee at each school will:

Tactics:

1. Document and distribute guidelines for equipment and data security.
2. Develop and enact procedures to ensure adequate security access levels and password privileges for all users.
3. Develop procedures to track access to user accounts and administrative records.
4. Document and disseminate the procedures for maintaining data and equipment, including back-up, recovery, retention schedules, off-site data retention, preventive maintenance schedules, inventory monitoring and accounting procedures.
5. Develop procedures to ensure that access to equipment and access to wiring closets is limited to authorized and qualified personnel.

Strategy D. Workstations and Computing Environment

In the face of rapidly changing technology, it is important to consider the environments where technology will be used, and the tasks the technology will need to perform. To address both of these issues, it is recommended that the concepts of TIERS and CONFIGURATIONS be considered.

The TIER approach is a technology sliding scale. As new technology and function appear in the market place, current equipment will migrate to lower tiers, with the newest becoming the current TIER-1 EQUIPMENT. NICHE equipment will remain in use as long as it is functional, and does not become a financial burden, or difficult to maintain and operate.

Tactics:

1. Technology purchased should be of the current TIER-1 specification.
2. Donations of technology in the lower tiers should not be rejected out of hand, but careful consideration of the purpose to which the equipment will be applied should drive the decision to accept the equipment.
3. Specific areas of utilization should be identified for older technology, before it is accepted. Often, older equipment is costly to maintain, more expensive to operate, and will not run most current software applications.

TIERS:

Following is a brief description of types of technology that could be placed in each tier.

TIER-1 is high level equipment that provides full functional capability.

TIER-2 technology is mid level equipment less functionally capable than tier-1.

TIER-3 is low level equipment which provides minimum functionality.

NICHE technology is that equipment suitable for specific applications but which has little, if any, market value.

Configurations (Appendix E) refers to the distribution of technology, particularly computers, computer networks and multimedia and print services. Example configurations are described below. The technology committee of each school should develop their own models based on their needs assessment. Expert advice should be obtained when planning the network infrastructure and technology distribution for a school.

Configurations:

Library or Multi-Media Configuration

The first TIER-1 computer available to the school should be placed in the library and connected to the Internet.

Mobile Cart Configuration

The mobile computer cart is suitable for those schools with a small technology budget. By utilizing the mobile computer cart, technology can be brought to each classroom on a shared basis. The mobility will allow each class to make use of the technology, thereby extending the technology dollar. The cart might include a laptop with wireless Internet access, an LCD projector, a document camera, and a printer.

Computer Laboratory Configuration

This configuration would establish a critical mass of computers to allow for optimum utilization of educational technology when funds are not yet available to distribute technology throughout the school. Effective curriculum integration of technology, however, will require technology in the classrooms.

Teachers' Workroom Configuration

This configuration would make technology available to the teachers in a common area away from the classroom. It would also provide a place for the teachers to experiment, perfect techniques, interact, and share experiences.

Classroom Configuration

The classroom cluster provides a technology center in each classroom. Typically, each cluster would contain a teacher/student station and three or more computers with a shared printer and Internet access. Additional technologies for the classroom should be investigated by the school technology committee.

Server Configuration

The client/server configuration (architecture) is the foundation upon which a technology infrastructure is built. Servers enhance security, optimize file and print services, improve disaster recovery, and facilitate network and Internet access and help desk support, among other things. Expert advice and support should be obtained when planning and implementing this technology.

Administrative Configuration

This configuration is dependent upon the needs of the administrative offices. The administrative offices should utilize a server to perform a multitude of administrative functions such as those required for PowerSchool. All hardware should be of business

quality.

Strategy E. Infrastructure Development

The greatest benefit of current and emerging technologies is the ability to freely access and share information. Expert advice and planning are crucial to the development of the network infrastructure, the foundation upon which technology integration will depend.

Tactics:

1. Schools should provide the technology necessary to allow full communication and sharing of information among students, teachers, administrators and the community. (Accessibility - Anywhere/anytime/anyplace)
2. Schools should provide Internet access for teachers, administrators and students. A network infrastructure (either wired or wireless) should be installed in every school. All data wiring shall be in accordance with local codes and industry standards.
3. Schools should seek expert advice in planning their network infrastructure.
4. Schools should seek expert support for their network infrastructure.

Strategy F. Emerging Technologies

Tactics:

1. Develop a process to identify promising new technologies.
3. Develop a process to analyze the effective use of new technologies for education.

Strategy G. Assessment and Evaluation

Tactics:

1. Schools should conduct an organized assessment of needs.
2. Schools should conduct an annual audit of equipment. (Appendix A)

Administrative Support

I. Introduction
II. Major Strategies Addressing Administrative Support
A. Ethical Use of Intellectual Property
B. School Security
C. Purchase and Maintenance of Software, Hardware, and Learning Environments
D. Use of Computers in Administrative Tasks
E. Financing Technology

Introduction

We have moved rapidly into a technological age. The dramatic increase in information and information access is forcing everyone into the roles of both learner and teacher. For our students to compete in the global, dynamic, information-intensive world, they need more than paper, pencils, and books. Technology offers expanded access to educational resources and information, provides an effective and efficient delivery mechanism for training services, and assists in meeting the increased educational demands of a rapidly changing world.

Administrators, as educational decision makers, must commit their efforts toward the implementation of a process that will make technology an integral part of the educational plan of their schools. Administrators must ensure their schools are properly equipped with technology, their teachers are using this technology to enhance the curriculum and facilitate learning, and their students are given opportunities to use the tools of technology effectively.

These newly acquired responsibilities should not be viewed as ancillary or subordinate to the other duties and responsibilities of administrators, and should not be turned over to non-educators. To accept a lead role for the integration of technology into their schools, administrators must be educated about and use technology.

Administrators are responsible for ensuring that the technology in their schools is used ethically and lawfully. They must also safeguard the hardware, software, and electronic information in their schools. Finally, they must properly fund and manage the acquisition and maintenance of technology.

By implementing more efficient and productive use of technology, administrators set an important example for teachers, students, and parents. As the instructional leaders of the schools, administrators must demonstrate enthusiasm for technology in their own tasks.

Major Strategies Addressing Administrative Support

Strategy A. Ethical Use of Technology

Educators must be models of integrity and must observe the laws that grant authors and other creators the right to the fruits of their labors. Therefore, it is recommended that all users of technology in the schools understand and commit themselves to the proper ethical, moral, and legal use of this technology (Appendix C).

Tactics:

1. The Division of Catholic Schools should include education for all administrators on the legal and ethical use of software and hardware as part of their inservice.
2. The Division of Catholic Schools should encourage each school to commit to the ethical use of electronic information, including the following topics:

Adherence to License Agreements

Restriction of Use of Privately-Owned Hardware and Software

Purchase of computer-related supplies, including printed materials

Security Measures: Maintenance of confidentiality and the safeguarding of data.

Proper Protocols for Networking and On-Line Services

3. Administrators should establish a document on the ethical and legal use of technology for their schools, and obtain a commitment from all teachers, students, and volunteers to use technology ethically.

Strategy B. School Security

The confidentiality of data, and the expense associated with technology make it imperative that all administrators understand the security issues related to technology. It is recommended that administrators take steps to ensure the protection of all technology.

Tactics:

1. Schools should design a master plan for the security of technology and the protection of data at their school. This plan should include an inventory of all technology by serial number and/or identifiable mark.
2. Schools should establish a document that administrators can use to protect the confidential documentation of students and personnel.
3. Schools should be responsible for protecting school files. This includes backing up essential programs and data.
4. Schools must safeguard against computer viruses in their equipment by purchasing and utilizing anti-virus programs.

5. Schools should create and maintain an inventory of technology at their site.
6. The Archdiocesan Insurance Office should provide a document on the insurance coverage provided for technology in the schools. This document should explain what procedures are to be followed to ensure the maximum coverage.

Strategy C. Purchase and Maintenance of Technology

Administrators may desire to obtain the services of qualified personnel to purchase and maintain equipment and the technology infrastructure. Administrators should recognize the need to restructure the educational environment to maximize the use of current and emerging technologies.

Tactics:

1. Schools should establish standards and guidelines to assist in the preparation of facility planning. Considerations could include provisions for telephone lines, conduits for future wiring, and electronic networking systems to enable communication via voice, video, and data lines.
2. The Archdiocesan Technology Committee for Education should recommend several contractors for the repair and maintenance of technology and the retrofitting of educational facilities.
3. Schools should have a plan on how users are to report non-working technology.
4. Schools should establish a technology committee (see Prologue).
5. Schools should provide opportunities for the technology support staff to receive training in routine maintenance and repair of equipment.
6. The Archdiocese should solicit group pricing of software and hardware for purchasing by the individual schools.
7. The Archdiocese Technology Committee should assist schools in evaluating software and should make recommendations to schools on software purchasing.

Strategy D. Computers in Administrative Tasks

It is recommended that all administrators commit their schools to technology for administrative tasks to facilitate communications, information gathering, record keeping, and bookkeeping.

Tactics:
1. The Archdiocesan Technology Committee for Education should evaluate and recommend appropriate programs for administrative needs. This list should be distributed to administrators annually.
2. The Division of Catholic Schools should offer ongoing, intensive inservice to administrators and office personnel on the use of administrative programs. As part of this training, several model schools, where the recommended software is being used, should be established.
3. Schools should have technology workstations at a ratio of one to every fifteen teachers available for faculty use. These workstations will permit teachers to efficiently monitor student educational development, track learning patterns, access on-line networks, and enhance the instructional process.
4. Administrators should have orientation and access to e-mail and the Internet.
5. The Elementary Report Card Revision Committee should design a computerized version of a report card for those schools who wish to use it.
6. The Division of Catholic Schools should encourage administrators to respond to communications to and from the central office by way of e-mail. Reports and budgets should be submitted electronically.

Strategy E. Financing Technology

Recognizing the fiscal restraints prevalent in our Catholic Schools, it is recommended that all administrators establish a plan for long-range funding and develop strategies for funding educational technology activities.

Tactics:
1. Administrators should educate their school boards and pastors on the need to financially support instructional and administrative technology in the schools.
2. Administrator should put technology lines in the budget. Given the rapid pace of technological development, it is most realistic to view all expenditures as recurring costs with different timelines.

Annual Costs:
Consumable support materials
Software and upgrades
Staff development
Support (Maintenance and Repair)
on-site

contracted
expert advice
Telecommunication services
Budgeted Estimates for a Technology Replacement Cycle of Three to Five Years:
Computers
Other technology
The Archdiocese should establish expense lines on the chart of accounts for technology. The following new numbers are recommended:
5090 Technology
5090.01 Consumable support materials
5090.02 Software acquisition and upgrades
5090.03 Support (Maintenance and Repair)
on-site
contracted
expert advice
5090.04 Computers and other information equipment acquisition
5230.01 Telecommunication services
5260.01 Technology Staff development
3. Chief administrators should ensure that their budget provides adequate finances to provide inservice opportunities in educational technology on an ongoing basis. It is recommended that 30 percent of all money allocated to technology be designated for this purpose.
4. The Division of Catholic Schools, in conjunction with the Division of Information Systems of the Archdiocese, should:
Implement the directives of the Archdiocesan Technology Committee.
Explore alternate types of funding for staff development and the integration of technology across the curriculum.
Initiate, in concert with the Development Office of the Archdiocese of Baltimore, partnerships with businesses and other organizations to serve as resources to all schools.
Provide, with the assistance of the Development Office of the Archdiocese of Baltimore, Grant Writing Workshops annually for Boards, Administrators, and/or School Coordinators.
Disseminate information to schools on funding available through grants, foundations, and federal programs.

Investigate the cost-effective benefits of group purchases, site-licensing, etc. for hardware and software.

Curriculum Integration

I. Introduction
II. Major Strategies of Curriculum Integration (Appendix F)
III. Technology Tools for Curriculum Integration
IV. Sample Lesson Plan
V. References for Curriculum Integration of Technology (Appendix B)

Introduction

If our youth are to be well prepared for the future, we must reach beyond conventional boundaries to empower and inspire them. We must integrate technology into curriculum and emphasize the value technological tools impart in a learning environment. Integration begins with an awareness and understanding of technology, continuing through the student's life, strengthening and enriching basic human skills and needs such as: problem solving, creativity, communication, interpretation, organization and exploration. Technology instruction focuses on the computer as a learning tool, striving to develop skills that can be applied across a range of disciplines. The basic principles of this type of approach include: utilizing the computer as a tool for self-directed learning; focusing on higher order thinking and problem solving skills; incorporating active learning where students themselves determine the most appropriate activities to achieve their goal; using thematic, project-based activities to explore content and apply skills into actual practice; applying learned skill and content to interdisciplinary activities. Refined technological skills will be required to succeed in the twenty-first century.

This section is divided into several major areas.

- Major Strategies of Curriculum Integration - outlines the major strategies that a technology program should encompass. These strategies are taken directly from the Technology Education Course of Study – Archdiocesan Standards. The tactics are also from the Technology Education Course of Study and are structured by grade level.
- Major Technology Tools to Integrate into Disciplines - introduces the major technology skills that provide the foundation for the integration of technology into the core academic disciplines.
- Appendix F - details the Technology Education Course of Study (2002), which provides the strategies and tactics for the integration of technology into academic disciplines by grade level.

We would like to thank the Archdiocesan Technology Education Committee for providing the framework for the curriculum integration section.

Major Strategies of Curriculum Integration

The student:

- Demonstrates competency in the basic operations of a computer and understands concepts in the utilization of technology systems.
- Applies Catholic/Christian values to social, ethical, and human issues related to the application of technology.
- Demonstrates use of technology productivity tools as preparation for life skills.
- Demonstrates the use of technology tools to collaborate, communicate, and interact with others as global citizens.
- Demonstrates responsible Catholic/Christian behavior in using technology research tools.
- Understands and uses technology problem-solving and decision-making tools and uses them to augment critical thinking skills in cross-curricular activities.

* Adapted from the National Educational Technology Standards for Students: Connecting Curriculum and Technology 2000 published by International Society for Technology in Education (ISTE).

Technology Tools for Curriculum Integration

Learning to use technology should not be the final goal for students. Rather, students should learn to use technology as tools to enhance their learning across the curriculum. While it is understood that certain technological skills are often introduced and practiced in isolation of other curriculum, it should always be kept in the forefront that these skills ultimately should be used by the students to actively work with information across the curriculum.

Technology is a set of tools for learning that is constantly changing. The abacus and the slide rule were once used extensively as tools for learning. Today, new technology is still being developed, but there are several tools that belong on an essential list for schools.

The following list of technology is composed of those tools that have been used successfully in schools for learning. The tools are briefly described, but are not assigned to any particular grade level. Please refer to the Archdiocesan Technology Course of Study for suggested tools and related skills by grade level.

Assumptions:

1. Parents and teachers must supervise all technology use.
2. Classroom teachers and "computer teacher(s)" plan and collaborate so that this technology curriculum is integrated into ordinary class teaching and learning.
3. Technology includes multi-media tools, calculators, telecommunication tools and other contemporary technologies as well as computers.

Tools:

A. Hardware – The student understands the principles of digital data input, storage, transfer and output, and can connect appropriate devices for both general and specific purposes.

B. Operating Systems – The students uses an operating system to establish and

customize connections between the hardware components and to navigate between software applications.

C. Word Processor - The student composes and edits text documents using the various

features of a word processor.

D. Keyboarding – The student increases speed and accuracy with typing as proper hand

positioning is taught and practiced.

E. Spreadsheet – The student creates and modifies tables of numeric data and use

equations to calculate interdependent data.

F. Database – The student classifies and categorizes information, builds database tables,

and modifies them as needed. The student also learns to sort and retrieve data from a database once it has been created.

G. Graphics – The student creates visual statements through the use of drawing

programs, digital photography, and scanning.

H. Programming – The student authors and modifies an application through the use of a computer language.

I. Telecommunication – The student uses technology (the Internet, electronic mail, video-conferencing,…) to communicate with the global community in a manner that is courteous and ethical.

J. Desktop Publishing - The student combines word processing and graphics to create

and modify literature for a variety of purposes and audiences.

K. Animation – The student creates and modifies graphics with motion.

L. Multimedia Presentations - The student creates and modifies audio-visual presentations for a variety of purposes and audiences through the use of digital slide shows and video.

M. Website Development - The student designs and manages website content through the use of programming or software.

N. Distant Education – The student participates in coursework through the use of the Internet or other telecommunication technology.

Sample Lesson Plan

Objective: Students will collect data in a survey, display the data in an appropriate graph, and draw conclusions from their graph.
Grade level: 1-8 (lesson can be modified in complexity for different grade levels)
Subject area: Math, Science, Social Studies (subject area depends on topic chosen for survey)
Materials needed: paper to tally survey results
graphing software (may be a spreadsheet software with graphing options)
paper to print graphs,
disks to save graphs
word processing software (optional)
Lesson summary: Students will decide on a topic for their survey and create the question that they will ask to collect their date. Students will collect and record their data as they conduct the survey on the determined number of participants. Students will tally their results and enter the data into a graphing software program. Students will use the software features to create a visually pleasing and well-labeled graph appropriate to the information collected. Students will save and print their graphs. Students will write a response to their graphs that may be based on questions provided by their teacher or based on their own observations. As a final optional step, students can create a visual display with their document and their graph.

References for Curriculum Integration of Technology

There are several valuable resources for technology integration. They can be found in Appendix B.

Epilogue

The integration of technology into the curriculum is critical to the ongoing success of our schools and the instruction of our students. Combining the potential of technology to access information with the ability of teachers to guide students in critical thinking skills will provide the best opportunity for learning to our students. Developing and implementing The Strategic Plan for Technology in Education will require the support and cooperation of the entire community. It must be supported not only in spirit, but also financially. The School Technology Committees must have the moral and financial support of their school administration and will need to be creative as they seek funding. The Archdiocesan Technology Committee for Education should explore and prioritize common goals for technology in our schools, develop a tactical plan, and build support within the community for the plan, including human, capital and corporate resources. For the plan to succeed, it must be accepted by the community as essential to the long-range educational mission of our schools.

Appendix A

ARCHDIOCESE OF BALTIMORE
TECHNOLOGY ASSESSMENT SURVEY
2002 SCHOOL TECHNOLOGY SURVEY

Name of School

Person Completing Survey First Name Last Name

Title

E-Mail Address

Telephone Number

TECHNOLOGY PLAN

1.	Does your school have a Technology Plan? (see www.sl.universalservice.org/apply/step2.asp for information)	Yes No In Progress
2.	Does the Plan meet the following minimum criteria necessary for e-rate funding approval?	
a.	The plan covers a period of not more than three years.	Yes No
b.	The plan establishes clear goals and a realistic strategy for using telecommunications and information technology to improve education or library services.	Yes No
c.	The plan has a professional development strategy to ensure that staff know how to use the new technologies to improve education or library services.	Yes No
d.	The plan includes an assessment of the telecommunication services, hardware, software, and other services that will be needed to improve education or library services.	Yes No
e.	The plan provides for a sufficient budget to acquire and maintain the hardware,	Yes

	software, professional development, and other services that will be needed to implement the strategy for improved education or library services.	No
f.	The plan includes an evaluation process that enables the school or library to monitor progress toward the specified goals and make mid-course corrections in response to new developments and opportunities as they arise.	Yes No

NETWORK CONNECTIVITY

3.		Are your school computer systems connected to a network?

Local Area Network (School only) Campus Network (School, Parish, etc.) No Network

4.		What Network Operating System is used on your campus?

Windows NT/2000 Novell Linux Mac OS Other

If you chose Other above, what is the operating system?

5.	Information about the school's primary Internet Service Provider (ISP)?

Type of Connection: Dial-Up DSL Cable Modem Other None

Data transmission speed: 28.8 kbps 56 kbps 128 kbps 256 kbps 512 kbps 1.5 mb

Name of ISP:

6.	Does your school use content filtering software or services?	Yes No

If yes, please enter type or name of service

Please indicate machines connected to the Internet other than through the Primary ISP Noted Above.

(Include network information for counselors with teachers.)

Internet Access	Office Staff	Teachers	Library	Labs	Classrooms	Other
Modem						
Frame Relay						
Cable Modem						
ISDN						
DSL						
37						
Other						

COMPUTER HARDWARE

Please enter the number of PC's located in each area. Do NOT double count Machines

(Include PC's for Counselors with Teachers.)

IBM Compatible	Office Staff	Teachers	Library	Labs	Classrooms	Other
Desktops						
Pentium						
Pentium II						
Pentium III						
Pentium 4						
Other						
Laptops						
Pentium						
Pentium II						
Pentium III						
Pentium 4						
Other						
Apple						
Desktops						
iMac						
eMac						
PowerMac G Class						
PowerPC						
PowerPC G Class						
Laptops						
iBook						
PowerBook						
Other						

OTHER TECHNOLOGY HARDWARE

7. If your plan includes a Hardware Replacement Plan:

What is the replacement cycle? No Plan 4 Years 3 Years Other

If you chose Other above, what is the cycle?

Please enter numbers of hardware located in each area. Do NOT double count.
(Include Hardware for Counselors with Teachers.)

	Office Staff	Teachers	Library	Labs	Classrooms	Other
Local Printer						
Network Printers						
Standalone Copiers						
Network Copiers						
Scanner						
Personal Data Assistant						
Fax Machine						
Computer Projector.						
Digital Camera						
Video Camera						
Television						
VCR						
Cable TV						
Cellular Phone						
Voice Mail						
Telephone Handset						
Other						

8. Does your school have a telephone system? Yes No

Does the phone system have voice mail services? Yes No

COMPUTER NETWORKS

Please enter numbers of each located in each area.
(Include Network Information for Counselors with Teachers.)

Network Computers	Office Staff	Teachers	Library	Labs	Classrooms	Other
Peer to Peer						
Client/Server						

9. What is the total number of hubs used by the school?

10. What is the total number of routers used by the school?

11. What is the total number of firewalls used by the school?

12. What is the total number servers used by the school?

13. What types of servers does the school use? (Check all that apply.)

File/Print Email Web Proxy Other

DEVELOPMENT

14. Has your school applied for e-rate funding? Yes No

15. Has your school received e-rate funding? Yes No

Please enter the amount received for each year.

1998 1999 2000 2001 2002

16. Has your school received any technology grants within the last 5 years (other than E-Rate)? Yes No

Please enter the amount received and the source of funds for each year.

1998 Source

1999 Source

2000 Source

2001 Source

2002 Source

17. How does the school acquire its technology equipment? (Check all applicable methods.)

Grocery Receipts

Donations - List Types

Budgeted Expenditure

Corporate Sponsors - List

39
Corporations
Grants
Fundraising
Other

18. Does your school have an Alumni Annual Giving Campaign that dedicates some funds to technology? Yes No

SUPPORT SERVICES

19. Does your school have a Technology Coordinator?

Full-Time Part-Time Volunteer None
First Name Last Name
Email Address
Telephone Number

20. Does your school have a web page (URL)? Yes No

What is the address of your school web page?

21. Do school staff members utilize e-mail accounts on a regular basis?

Yes, Provided by School Yes, Personal Accounts No

22. What computer vendors has your school used for system acquisition over the last two years?

Vendor Year Acquired (Enter a 4 digit year)

Vendor Year Acquired (Enter a 4 digit year)

Vendor Year Acquired (Enter a 4 digit year)

Vendor Year Acquired (Enter a 4 digit year)

23. Indicate individuals who support the school's computer systems. (Check all that

40
apply)
Full time computer specialist
Part time computer specialist
Full time computer specialist/Other
Part time computer specialist/Other (teacher, administrator, etc.)
Paid computer service
Other

24. CONTRACTUAL SERVICES

(Mark any of the following technology services below)

The school does not contract technology support services
Software Maintenance
Hardware Maintenance
Programming
Analysis
Communications
Classroom Instruction
Other

Submit

Appendix B

Technology Planning and Resource Links

• http://www.stmarysannapolis.org (Great site within the Archdiocese of Baltimore for Technology Planning Information. They have many relevant links)
• http://www.glef.org/ (George Lucas Educational. Foundation – Dedicated to Education in the Digital Age)
• http://caret.iste.org/ (Center for Applied Research in Educational Technology)
• http://www.ncrel.org/sdrs/areas/issues/methods/technlgy/te300.htm
• http://www.ntia.doc.gov/ntiahome/net2/
• http://staffdevelop.org/articles.html
• http://www.classroom.com (Internet and Curriculum Integration)
• http://www.ed.gov/pubs/ (Technology Resources)
• http://knowledgeloom.org/gmott (Models of Teaching with Technology)
• http://www.portical.org/matrix2.html (Technology Information Center for Administrative Leadership)
• http://www.pbs.org/teachersource/teachtech/research.shtm#student (Resource for all aspects of technology planning)

References for Curriculum Integration of Technology

• http://www.marcopolo-education.org/ (Standards-based lesson plans that integrate technology Resources including search engines, lesson plans, materials, and activities are provided by nationally recognized organizations.)
• http://www.iste.org (ISTE - International Society for Technology in Education)
• http://cnets.iste.org/index2ns.html (Information concerning the use of technology in a variety of situations, such as small-group learning projects, demonstrations, and learning centers.
• http://www.fno.org (Jamie McKenzie's online magazine "From Now On" offers articles, ideas, and links to promote productive use of technology in the classroom.
• http://questioning.org/articles.html (Focuses on information literacy, quality research practices and the development of research modules in the Information Age.)
• http://webquest.sdsu.edu/webquest.html . (WebQuests are developed by teachers to promote meaningful research on the Internet by providing students with a purpose, reliable resources, and an end-product that demonstrates that learning has taken place.)

Appendix C

Sample Ethical and Moral Use Policy for Technology

The following is a statement on technology ethics. In an academic environment, it is generally desirable for technology to support learning and to enhance instruction. In general, it is a policy that all technology be used in a responsible, efficient, ethical, and legal manner. Failure to adhere to the policy and guidelines will result in the revocation of use privileges.

Unethical Behaviors

It is considered unethical to:

1. Use profanity, obscenity, or other language that may be offensive to other users.
2. Forward personal communication without the author's prior consent.
3. Copy commercial software in violation of copyright laws.
4. Use technology inappropriately.
5. Modify data not specifically assigned to or created by the modifier.
6. Destroy data or property that is not owned by the destroyer.
7. Use another person's programs or data without their permission.
8. Abuse or improperly use hardware or public software.
9. Commit any other act that is irresponsible or infringes upon the rights of others.

The fundamental principle behind the policy is: While using the technology, you should never do anything that harms another user.

Computer Access Disclosure Statement

Employees of and other authorized persons affiliated with the Archdiocese who are given computer access privileges will be asked to review and sign the following statement.

"I, _____, recognize and acknowledge that electronic communication channels developed and supplied by the Archdiocese of Baltimore as a condition of duties must be used according to terms and conditions set out by the Archdiocese. These channels include, but are not limited to, the following:

- Internet and the World Wide Web
- Computer-based online services
- Electronic mail and messaging systems
- Electronic bulletin board systems

I acknowledge that the distribution of any information through these and other channels supplied by Archdiocese of Baltimore is subject to the scrutiny and approval of the Archdiocese, and that the Archdiocese reserves the sole right to determine the suitability and confidentiality of said information.

I also acknowledge that the Archdiocesan assets include many items, including but not limited to the following information types:

- Employee information
- Employee benefits and insurance information
- Databases and the information contained therein
- Computer and network access codes and similar or related information
- Contractual and proprietary information
- Research projects and all related information connected with research efforts
- Other confidential or proprietary information that has not been made available to the general public by the Archdiocese.

I further acknowledge that all information related to the accomplishment of the mission of the Archdiocese, including the information types referenced above and other tangible and intangible assets and other information obtained by me in the course of my duties are Confidential Information and the property of the Archdiocese. Further, such Confidential Information may be subject to trademark, copyright or similar protections.

I acknowledge that any disclosure of the Confidential Information, even inadvertent disclosure, may cause irreparable harm and material damage to the Archdiocese. Both during and after my employment or affiliation with the Archdiocese, and regardless of the reason for termination of such employment or affiliation, I agree (a) not to use or disclose the Confidential Information, other than solely in the furtherance of Archdiocesan business or as required by law; (b) to take all lawful measures to prevent the unauthorized use or disclosure of the Confidential Information to any third party; (c) to take all lawful measures to prevent unauthorized persons or entities from obtaining or using the Confidential Information; and (d) not to take any actions that would constitute or facilitate the unauthorized use or disclosure of Confidential Information. The term "unauthorized" shall mean the following:

- In contravention of any written policies or procedures of the Archdiocese
- Otherwise inconsistent with Archdiocesan measures to protect its interests in its Confidential Information
- In contravention of any lawful instruction or directive, either written or oral, of an employee of the Archdiocese empowered to issue such instruction or directive
- In contravention of any duty existing under law or contract.

I acknowledge that all of the items comprising the Confidential Information are confidential, whether or not the Archdiocese specifically labels such information as confidential or internally restricts access to such information.

I have read and will comply with the terms of the Computer Use and Internet Policy of the Archdiocese of Baltimore.

Date _____ Employee Signature

_____

Effective 05.01.99

Computer Use & Internet Policy

Central Services
Archdiocese of Baltimore
Division of Information Services, Department of Management Services

Overview

The Internet is a worldwide telecommunications network of networks that links millions of users and computers. Government, corporate, commercial and educational entities are linked, permitting Internet users to easily access and share vast stores of information. The Internet is an important resource for the Archdiocese to provide better, cheaper and faster services to parishes and schools. The Archdiocese will creatively use the Internet to improve services and contribute broadly to the mission of the Church. The connection to the Internet and related facilities provided by the Archdiocese of Baltimore (the "Internet Facilities") exist to facilitate the official work of the Archdiocese.

The Internet Facilities are provided for employees and authorized persons affiliated with the Archdiocese for the efficient exchange of information and the completion of assigned responsibilities consistent with the mission of the Archdiocese. The use of the Internet Facilities by any employee or other person authorized by the Archdiocese (the "Users") must be consistent with this Policy (including all security and confidentiality provisions set forth therein).

Policy

This policy is intended to identify the principles of Acceptable Use and Unacceptable Use of the Internet Facilities; define Archdiocesan rights; address Enforcement and Violations provisions; and set forth the Employee Internet Access Disclosure Statement that employees granted access privileges will be required to acknowledge and sign.

Principles of Acceptable Use

Archdiocese of Baltimore Internet Users are required:

- To respect the privacy of other Users; for example, Users shall not intentionally seek information on, obtain copies of, or modify files or data maintained by other Users, unless explicit permission to do so has been obtained;
- To respect copyright and license agreements for software, digital artwork, and other forms of electronic data;
- To protect data from unauthorized use or disclosure as required by state and federal laws and Archdiocesan regulations;
- To respect the integrity of computing systems: for example, Users shall not use or develop programs that harass other Users or infiltrate a computer or computing system and/or damage or alter the software components of a computer or computing system;

- To limit personal use of the Internet Facilities and equipment to that which is incidental to the User's official assignments and job responsibilities;
- To safeguard their accounts and passwords. Accounts and passwords are normally assigned to single Users and are not to be shared with any other person without authorization. Users are expected to report any observations of attempted security violations.

Unacceptable Use

It is not acceptable to use Archdiocese of Baltimore Internet facilities for activities unrelated to the mission of the Archdiocese, including:

- For activities unrelated to official assignments and/or job responsibilities, except incidental personal use in compliance with this Policy;
- For any illegal purpose;
- To transmit, receive, or access threatening, libelous, defamatory, sexual, obscene or harassing materials or correspondence;
- For unauthorized distribution of Archdiocese of Baltimore data and information;
- To interfere with or disrupt network Users, services or equipment;
- For private purposes, whether for-profit or non-profit, such as marketing or business transactions unrelated to Archdiocesan duties;
- For any activity related to political causes;
- To advocate religious beliefs or practices contrary to Roman Catholic teaching;
- For private advertising of products or services;
- For any activity meant to foster personal gain;
- Revealing or publicizing proprietary or confidential information;
- Representing opinions as those of the Archdiocese of Baltimore;
- Uploading or downloading commercial software in violation of its copyright;
- Downloading any software or electronic files without reasonable virus protection measures in place;
- Intentionally interfering with the normal operation of any Archdiocesan Internet gateway.

Archdiocese of Baltimore Rights

Pursuant to the Electronic Communications Privacy Act of 1986 (18 USC 2510 et seq), notice is hereby given that there are NO facilities provided by this system for sending or receiving private or confidential electronic communications. System administrators have access to all mail and User access requests, and will monitor messages as necessary to assure efficient performance and appropriate use. Messages relating to or in support of illegal activities will be reported to the appropriate authorities.

- The Archdiocese reserves the right to log network use and monitor file server space utilization by Users and assumes no responsibility or liability for files deleted due to violation of file server space allotments.
- The Archdiocese reserves the right to remove a User account from the network.
- The Archdiocese will not be responsible for any damages. This includes the loss of data resulting from delays, non-deliveries, or service interruptions caused by

negligence, errors or omissions. Use of any information obtained is at the User's risk. The

Archdiocese makes no warranties, either express or implied, with regard to software obtained from the Internet.

• The Archdiocese reserves the right to change its policies and rules at any time.

The Archdiocese makes no warranties (express or implied) with respect to Internet service, and it specifically assumes no responsibilities for:

- The content of any advice or information received by a User through the Internet Facilities or any costs or charges incurred as a result of seeking or accepting such advice;
- Any costs, liabilities or damages caused by the way the User chooses to use the Internet Facilities;
- Any consequence of service interruptions or changes, even if these disruptions arise from circumstances under the control of the Archdiocese. The Archdiocesan Internet Facilities are provided on an as is, as available basis.

Enforcement and Violations

This policy is intended to be illustrative of the range of acceptable and unacceptable uses of Internet Facilities and is not necessarily exhaustive. Questions about specific uses related to security issues not enumerated in this policy statement and reports of specific unacceptable uses should be directed to the User's Division Director. Other questions about appropriate use should be directed to the User's supervisor.

The Archdiocese will review alleged violations of the Internet Acceptable Use Policy on a case-by-case basis. Violations of the policy will result in disciplinary actions as appropriate, up to and including dismissal.

Appendix D References for Professional Development

ISTE NATIONAL EDUCATIONAL TECHNOLOGY STANDARDS (NETS) AND PERFORMANCE INDICATORS FOR TEACHERS

All classroom teachers should be prepared to meet the following standards and performance indicators:

I. TECHNOLOGY OPERATIONS AND CONCEPTS

Teachers demonstrate a sound understanding of technology operations and concepts. Teachers:

A. demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Education Technology Standards for Students).

B. demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies.

II. PLANNING AND DESIGNING LEARNING ENVIRONMENTS AND EXPERIENCES

Teachers plan and design effective learning environments and experiences supported by technology. Teachers:

A. design developmentally appropriate learning opportunities that apply technology- enhanced instructional strategies to support the diverse needs of learners.

B. apply current research on teaching and learning with technology when planning learning environments and experiences.

C. identify and locate technology resources and evaluate them for accuracy and suitability.

D. plan for the management of technology resources within the context of learning activities.

E. plan strategies to manage student learning in a technology-enhanced environment.

III. TEACHING, LEARNING, AND THE CURRICULUM

Teachers implement curriculum plans that include methods and strategies for applying technology to maximize student learning. Teachers:

A. facilitate technology-enhanced experiences that address content standards and student technology standards.

B. use technology to support learner-centered strategies that address the diverse needs of students.

C. apply technology to develop students' higher order skills and creativity.

D. manage student learning activities in a technology-enhanced environment.

IV. ASSESSMENT AND EVALUATION

Teachers apply technology to facilitate a variety of effective assessment and evaluation strategies.

Teachers:

A. apply technology in assessing student learning of subject matter using a variety of assessment techniques.

B. use technology resources to collect and analyze data, interpret results, and

communicate findings to improve instructional practice and maximize student learning.

C. apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity.

V. PRODUCTIVITY AND PROFESSIONAL PRACTICE

Teachers use technology to enhance their productivity and professional practice. Teachers:

A. use technology resources to engage in ongoing professional development and lifelong learning.

B. continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.

C. apply technology to increase productivity.

D. use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning.

VI. SOCIAL, ETHICAL, LEGAL, AND HUMAN ISSUES

Teachers understand the social, ethical, legal, and human issues surrounding the use of technology in PK–12 schools and apply that understanding in practice. Teachers:

A. model and teach legal and ethical practice related to technology use.

B. apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.

C. identify and use technology resources that affirm diversity.

D. promote safe and healthy use of technology resources.

E. facilitate equitable access to technology resources for all students.

TECHNOLOGY FOUNDATION STANDARDS FOR STUDENTS

1. Basic operations and concepts
    - Students demonstrate a sound understanding of the nature and operation of technology systems.
    - Students are proficient in the use of technology.
2. Social, ethical, and human issues
    - Students understand the ethical, cultural, and societal issues related to technology.
    - Students practice responsible use of technology systems, information, and software.
    - Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.
3. Technology productivity tools
    - Students use technology tools to enhance learning, increase productivity, and promote creativity.
    - Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.
4. Technology communications tools
    - Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
    - Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.
5. Technology research tools
    - Students use technology to locate, evaluate, and collect information from a variety of sources.
    - Students use technology tools to process data and report results.
    - Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.
6. Technology problem-solving and decision-making tools
    - Students use technology resources for solving problems and making informed decisions.
    - Students employ technology in the development of strategies for solving problems in the real world.

Numbers in parentheses following each performance indicator refer to the standards category to which the performance is linked. The categories are:

1. Basic operations and concepts
2. Social, ethical, and human issues

3. Technology productivity tools

4. Technology communications tools

5. Technology research tools

6. Technology problem-solving and decision-making tools

Prior to completion of Grade 2, students will:

1. Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes, and other technologies. (1)

2. Use a variety of media and technology resources for directed and independent learning activities. (1, 3)

3. Communicate about technology using developmentally appropriate and accurate terminology. (1)

4. Use developmentally appropriate multimedia resources (e.g., interactive books, educational software, elementary multimedia encyclopedias) to support learning. (1)

5. Work cooperatively and collaboratively with peers, family members, and others when using technology in the classroom. (2)

6. Demonstrate positive social and ethical behaviors when using technology. (2)

7. Practice responsible use of technology systems and software. (2)

8. Create developmentally appropriate multimedia products with support from teachers, family members, or student partners. (3)

9. Use technology resources (e.g., puzzles, logical thinking programs, writing tools, digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas, and stories. (3, 4, 5, 6)

10. Gather information and communicate with others using telecommunications, with support from teachers, family members, or student partners. (4)

Prior to completion of Grade 5, students will:

1. Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively. (1)

2. Discuss common uses of technology in daily life and the advantages and disadvantages those uses provide. (1, 2)

3. Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use. (2)

4. Use general purpose productivity tools and peripherals to support personal productivity,

remediate skill deficits, and facilitate learning throughout the curriculum. (3)

5. Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom. (3, 4)

6. Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning, and pursue personal interests. (4)

7. Use telecommunications and online resources (e.g., e-mail, online discussions, Web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products for audiences inside and outside the classroom. (4, 5)

8. Use technology resources (e.g., calculators, data collection probes, videos, educational software) for problem solving, self-directed learning, and extended learning activities. (5, 6)

9. Determine which technology is useful and select the appropriate tool(s) and technology resources to address a variety of tasks and problems. (5, 6)

10. Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources. (6)

Prior to completion of Grade 8, students will:

1. Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use. (1)

2. Demonstrate knowledge of current changes in information technologies and the effect those changes have on the workplace and society. (2)

3. Exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse. (2)

4. Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research. (3, 5)

5. Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum. (3, 6)

6. Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom. (4, 5, 6)

7. Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or products for audiences inside and outside the classroom. (4, 5)

53 8. Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems. (5, 6)

9. Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving. (1, 6)

10. Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems. (2, 5, 6)

Prior to completion of Grade 12, students will:

1. Identify capabilities and limitations of contemporary and emerging technology resources and assess the potential of these systems and services to address personal, lifelong learning, and workplace needs. (2)

2. Make informed choices among technology systems, resources, and services. (1, 2)

3. Analyze advantages and disadvantages of widespread use and reliance on technology in the workplace and in society as a whole. (2)

4. Demonstrate and advocate for legal and ethical behaviors among peers, family, and community regarding the use of technology and information. (2)

5. Use technology tools and resources for managing and communicating personal/professional information (e.g., finances, schedules, addresses, purchases, correspondence). (3, 4)

6. Evaluate technology-based options, including distance and distributed education, for lifelong learning. (5)

7. Routinely and efficiently use online information resources to meet needs for collaboration, research, publications, communications, and productivity. (4, 5, 6)

8. Select and apply technology tools for research, information analysis, problem-solving, and decision-making in content learning. (4, 5)

9. Investigate and apply expert systems, intelligent agents, and simulations in real-world situations. (3, 5, 6)

10. Collaborate with peers, experts, and others to contribute to a content-related knowledge base by using technology to compile, synthesize, produce, and disseminate information, models, and other creative works. (4, 5, 6)

F. advocate, on the state and national levels, for policies, programs, and funding opportunities that support implementation of the district technology plan.

http://cnets.iste.org/tssa/docs/tssa.pdf

Technology Standards for School Administrators

I. Leadership and Vision:

Educational leaders inspire a shared vision for comprehensive integration of technology and foster an environment and culture conducive to the realization of that vision.
Educational leaders:

A. facilitate the shared development by all stakeholders of a vision for technology use and widely communicate that vision.

B. maintain an inclusive and cohesive process to develop, implement, and monitor a dynamic, long-range, and systemic technology plan to achieve the vision.

C. foster and nurture a culture of responsible risk-taking and advocate policies promoting continuous innovation with technology.

D. use data in making leadership decisions.

E. advocate for research-based effective practices in use of technology.

II. Learning and Teaching:

Educational leaders ensure that curricular design, instructional strategies, and learning environments integrate appropriate technologies to maximize learning and teaching.
Educational leaders:

A. identify, use, evaluate, and promote appropriate technologies to enhance and support instruction and standards-based curriculum leading to high levels of student achievement.

B. facilitate and support collaborative technology-enriched learning environments conducive to innovation for improved learning.

C. provide for learner-centered environments that use technology to meet the individual and diverse needs of learners.

D. facilitate the use of technologies to support and enhance instructional methods that develop higher-level thinking, decision-making, and problem-solving skills.

E. provide for and ensure that faculty and staff take advantage of quality professional learning opportunities for improved learning and teaching with technology.

III. Productivity and Professional Practice:

Educational leaders apply technology to enhance their professional practice and to increase their own productivity and that of others.
Educational leaders:

A. model the routine, intentional, and effective use of technology.

B. employ technology for communication and collaboration among colleagues, staff,

parents, students, and the larger community.

C. create and participate in learning communities that stimulate, nurture, and support faculty and staff in using technology for improved productivity.

D. engage in sustained, job-related professional learning using technology resources.

E. maintain awareness of emerging technologies and their potential uses in education.

F. use technology to advance organizational improvement.

IV. Support, Management, and Operations:

Educational leaders ensure the integration of technology to support productive systems for learning and administration.

Educational leaders:

A. develop, implement, and monitor policies and guidelines to ensure compatibility of technologies.

B. implement and use integrated technology-based management and operations systems.

C. allocate financial and human resources to ensure complete and sustained implementation of the technology plan.

D. integrate strategic plans, technology plans, and other improvement plans and policies to align efforts and leverage resources.

E. implement procedures to drive continuous improvements of technology systems and to support technology replacement cycles.

V. Assessment and Evaluation:

Educational leaders use technology to plan and implement comprehensive systems of effective assessment and evaluation.

Educational leaders:

A. use multiple methods to assess and evaluate appropriate uses of technology resources for learning, communication, and productivity.

B. use technology to collect and analyze data, interpret results, and communicate findings to improve instructional practice and student learning.

C. assess staff knowledge, skills, and performance in using technology and use results to facilitate quality professional development and to inform personnel decisions.

D. use technology to assess, evaluate, and manage administrative and operational systems.

VI. Social, Legal, and Ethical Issues:

Educational leaders understand the social, legal, and ethical issues related to technology and model responsible decision-making related to these issues.

Educational leaders:

A. ensure equity of access to technology resources that enable and empower all learners and educators.

B. identify, communicate, model, and enforce social, legal, and ethical practices to promote responsible use of technology.

C. promote and enforce privacy, security, and online safety related to the use of technology.

D. promote and enforce environmentally safe and healthy practices in the use of

technology.

E. participate in the development of policies that clearly enforce copyright law and assign ownership of intellectual property developed with district resources.

Appendix E

CONFIGURATIONS IN A NETWORKED SCHOOL

Appendix F

Technology Education Grades Kindergarten, 1, and 2

Basic Operations and Concepts		
The student: • Selects appropriate input/output/storage devices. (I) • Identifies computer parts using appropriate terminology. (I, D) • Uses the keyboard and mouse to operate a computer. (I, D) • Recognizes differences in the cursor's appearance. (I, D) • Shows how to properly start-up/ shut-down computer. (I, D) • Interprets screen commands. (I, D) • Demonstrates the correct use of disk/CD. (I, D) • Shows how to access appropriate software. (I, D) • Selects options from pull down menus. (I, D) • Points out commonly used function keys (e.g. enter, space bar, delete, backspace, and shift). (I, D) • Saves, retrieves, and prints documents as needed. (I, D) • Shows proper posture while operating a computer. (I)	The student: • Uses Catholic/Christian principles relative to the basic issues involved in the use of technology and technologically derived information. (I) • Demonstrates respect for the work of others. (I, D) • Demonstrates responsible use of equipment. (I, D) • Explains the basic safety rules for using technology. (I, D) • Works cooperatively and collaboratively when using technology. (I) • Knows consequences of misuse of equipment. (I, D) • Shows cooperation and collaboration with others when working on a computer in the classroom. (I, D, M)	The student: • Creates and edits text. (I) • Identifies formatting tools and implement simple formatting techniques with instruction. (I) • Uses teacher generated templates. (I) • Creates original drawings using basic paint/draw tools. (I) • Selects appropriate clip art images for text documents. (I) • Creates simple graphic presentations to share information with support from others. (I) • Creates items using desktop publishing. (I)

Technology Education Grades Kindergarten, 1, and 2

Technology Problem-solving and Decision-making tools		
The student: • Uses age appropriate Web sites for classroom activities. (I, D) • Uses Internet and Web etiquette and terminology. (I) • Participates in age appropriate collaborative online Projects. (I) • Uses technology resources for communication and illustration of thoughts, ideas and stories. (I)	The student: • Locates age appropriate information from the World Wide Web with the assistance of parents and teachers. (I) • Uses a variety of technology resources for learning activities. (I, D) • Recognizes the global aspect of the Internet. (I)	The student: • Identifies the technology tools needed for a particular task. (I, D) • Uses a variety of technology resources for directed and independent learning activities. (I, D) • Builds thinking skills using technology. (I, D)

Basic Operations and Concepts		
The student: • Selects appropriate input/output/storage devices when operating a computer. (D) • Explains computer components and terms. (D, M) • Selects from pull down menus. (M) • Demonstrates use of peripherals. (I, D) • Uses proper start up and shutdown procedures. (D, M) • Interprets screen commands. (D, M) • Uses appropriate keyboarding techniques efficiently and effectively. (I, D) • Accesses information or software not located on hard drive. (I, D) • Locates/opens saved document. (D, M) • Applies proper saving techniques. (D, M) • Explains the back up process for document protection. (I, D) • Demonstrates competence in the use of function and cursor control keys. (D) • Demonstrates how to manage multiple windows. (I, D) • Locates, renames, moves, and copies folders/files/disks/documents and manages personal files. (I, D)	The student: • Applies an understanding of Catholic/Christian principles relative to the basic issues involved in the use of technology and technologically derived information. (D) • Analyzes consequences of misuse of equipment. (D, M) • Relates the concept of ownership to the work of others. (D, M) • Demonstrates respectful responsible use of equipment. (D, M) • Examines the advantages/disadvantages related to the use of technology for both people and the environment. (I, D) • Explores daily use of technology. (I, D) • Works cooperatively and collaboratively when using technology. (D, M) • Makes appropriate moral decisions relative to technology. (I, D) • Charts the history of technological developments. (I, D) • Knows and abides by the Acceptable Use Policy of the Archdiocese and the school. (I, D)	The student: • Performs all of the basic skills in word processing programs for creating, editing and formatting documents. (D) • Uses teacher generated templates for individual and collaborative writing. (D, M) • Illustrates writing through the use of appropriate graphics. (I, D) • Creates original drawings using the full range of paint and draw tools. (D) • Identifies cells to input textual and numerical data. (I, D) • Creates graphs and charts using spreadsheet data. (I) •

• Applies basic networking skills. (I, D)
• Models proper posture. (D, M)

Creates, formats and uses an original spreadsheet. (I)
• Uses formulas to calculate values. (I)
• Creates a slide presentation to share information. (I, D)
• Incorporates multimedia elements in a presentation. (I, D)
• Adds special effects, animation and transitions to slide presentations. (I, D)
• Creates items using desktop publishing. (D)

Technology Problem-solving and Decision-making tools

The student: • Navigates the Internet to access the World Wide Web. (I, D) • Participates in age appropriate collaborative online projects. (D) • Identifies online security and virus issues. (I) • Uses telecommunications and online resources in support of education and personal interests. (I, D) • Uses Internet and web etiquette and terminology. (D) • Uses technology tools for writing, communication and publishing. (D)	The student: • Uses technology resources to access text and graphic information. (I, D) • Cites electronic sources. (I, D) • Uses a browser/search engine to gather data or collect information. (I, D) • Performs research using online databases. (I) • Discusses global aspects of information access. (I, D) • Evaluates online information and other electronic information sources for accuracy, appropriateness, relevance and bias. (I, D)	The student: • Selects appropriate technology to solve a problem or perform a task. (I, D) • Uses technology tools for problem solving and self-directed learning. (D) • Uses technology resources for data gathering and analysis. (I, D) • Develops thinking skills using technology. (D)

The student

- Selects appropriate input/output/storage devices (including adaptive devices when necessary) and media when operating a computer or other technology tools. (D, M)
- Explains computer components and processes using appropriate vocabulary. (M)
- Demonstrates use of peripherals as needed for daily personal or educational tasks. (M)
- Identifies and solves routine problems that occur with computer hardware. (I, D)
- Accesses information or software not located on hard drive. (M)
- Designs a plan for backing up important documents. (D)
- Demonstrates competence in the use of function and cursor control keys. (M)
- Uses appropriate keyboarding techniques efficiently and effectively. (M)
- Plans a strategy for the file management of personal files; locate, rename, move and copy folders/files/disks/documents as required for efficiency. (D, M)
- Demonstrates how to manage multiple windows/programs. (M)
- Applies basic networking skills. (D)
- Uses proper posture while operating a computer. (M)

The student

- Applies Catholic/Christian values toward the work of others in regard to plagiarism, ownership of information and privacy. (M)
- Demonstrates legal and ethical conduct through respectful, responsible use of equipment and information and proposes consequences for misuse. (M)
- Analyzes advantages/disadvantages of technology in society. (D, M)
- Explores daily use of technology. (M)
- Develops respect for the collaborative efforts of others when using technology. (M)
- Recommends appropriate Catholic/Christian moral decisions relative to technology among peers, family, and community. (D, M)
- Explains and abides by the Acceptable Use Policy of the Archdiocese and the school. (M)

The student

- Uses advanced features of word processing software to create documents individually and collaboratively. (D, M)
- Applies editing techniques using advanced features for text documents. (D, M)
- Uses appropriate graphics tools to enhance writing. (M)
- Demonstrates an understanding of the paint/draw tools through the creation of original drawings to enhance personal productivity. (D, M)
- Creates, formats and uses original spreadsheets to enhance learning in all areas. (D, M)
- Creates charts and graphs using spreadsheet data. (D, M)
- Uses formulas to calculate values to solve problems or analyze data. (I, D)
-

Incorporates appropriate multimedia elements to enhance presentations that share information for a variety of audiences. (D, M)

- Creates items using desktop publishing to share with a variety of audiences. (M)
- Creates a database to organize or arrange information. (I)

Technology Problem-solving and Decision-making tools

The student: • Evaluates the Internet and World Wide Web to determine appropriate tools for a task. (D, M) • Explains Internet and Web etiquette and terminology. (D, M) • Participates in age appropriate individual and /or collaborative online projects. (D, M) • Creates class and personal web pages. (I, D) • Uses email to obtain information and participate in online collaborative projects. (D, M) • Demonstrates an understanding of security and virus issues surrounding technology use. (D, M) • Designs, develops, publishes and presents products using technology. (D, M) • Uses telecommunications and online resources in support of education and personal interests. (D, M)	The student: • Uses technology resources to access and store information. (M) • Uses search strategies to locate information from multiple resources. (D, M) • Explains global aspects of information access. (D) • Analyzes information for its usefulness and makes appropriate choices from electronic information sources. (M) • Cites electronic sources using proper format. (D, M)	The student: • Applies thinking skills by using technology to gather information and problem-solve. (D) • Analyzes data or tracks information for real world situations. (I, D) • Recognizes the relationship between hardware, software and connectivity. (I, D) • Determines when technology is useful and select electronic tools as needed for personal and academic activities. (I, D) • Identifies emerging technologies and recognizes their importance. (I, D) • Recognizes differences in technology systems, resources and services and learns to make informed decisions. (I, D)

Technology Education Grades 9-12

Basic Operations and Concepts

The student

- Selects appropriate input/output/storage devices (including adaptive devices when necessary) and media when operating a computer or other technology tools. (M)
- Distinguishes among computer components and processes using correct vocabulary. (M)
- Appraises use of peripherals as needed for daily personal or educational tasks. (M)
- Identifies and solves routine problems that occur with computer hardware. (M)
- Designs a plan for backing up important documents. (M)
- Employs appropriate keyboarding techniques efficiently and effectively. (M)
- Designs a strategy for the file management of personal files; locates, renames, moves and copies folders/files/disks/documents as required for efficiency. (M)
- Manages multiple open windows/programs. (M)
- Applies basic networking skills.(D)
- Uses proper posture while operating a computer. (M)
- Makes informed choices among technology systems, resources, and services. (M)
- #2 from page 13

The student

- Applies Catholic/Christian values toward the work of others in regard to plagiarism, ownership of information, and privacy. (M)
- Demonstrates legal and ethical conduct through respectful, responsible use of equipment, and information and understands consequences for misuse. (M)
- Analyzes advantages/disadvantages of technology in society. (M)
- Explores the concept of reliance on technology in the workplace and in society as a whole. (M)
- . (M)
- Recommends appropriate Catholic/Christian moral decisions relative to technology among peers, family, and community. (D, M)
- Explains and abides by the Acceptable Use Policy of the Archdiocese and the school. (M)
- Identifies capabilities and limitations of existing and emerging technologies. (I,D,M)

The student

- Uses advanced features and correct formatting of word processing software to create documents individually and collaboratively. (M)
- Applies editing techniques using advanced features for text documents. (M)
- Uses appropriate graphics tools to enhance authentic publication. (M)
- Demonstrates an understanding of the paint/draw tools through the creation of original drawings to enhance personal productivity. (M)
- Constructs charts to communicate spreadsheet data. (D, M)
- Incorporates appropriate multimedia elements to enhance presentations. (M)

- Creates projects using desktop publishing techniques. (M)
- Creates and manages a database. (D,M)
- Designs and develops multipurpose spread sheets to display and manipulate information. (D,M)

Technology Education Grades 9 - 12

Technology Problem-solving and Decision-making tools	The student: • Explains Internet and Web etiquette and terminology. (M) • Participates in age appropriate individual and /or collaborative online projects. (M) • Analyzes the use of email to obtain information and participate in online collaborative projects. (D, M) • Demonstrates an understanding of security and virus issues surrounding technology use. (M) • Designs, develops, publishes and presents products using technology. (M) • Uses telecommunications and online resources in support of education and personal interests. (M) • Examines web design and development. (I)	The student: • Uses search strategies to locate information from multiple resources. (M) • Evaluates global aspects of information technology. (D) • Evaluates the Internet to determine quality of information. (M) • Cites electronic sources using required format. (M) • Analyzes information for its usefulness and makes appropriate choices from electronic information sources. (M) • #8 from page 13.	The student: • Develops critical thinking skills by using technology to gather information and problem-solve. (D, M) • Analyzes data or tracks information in real world situations. (D, M) • Recognizes the relationship between hardware, software and connectivity. (D,) • Determines when technology is appropriate, and selects electronic tools as needed for personal and academic activities. (D, M) • Identifies emerging technologies and recognizes their importance. (D, M) • Recognizes differences in technology systems, resources and services and learns to make informed decisions regarding their use. (D, M) • Introduces expert systems, intelligent agents, and simulations in real-world situations. (I) • #10 from page 13