

2009-2010

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS



Acknowledgments

The *2009-2010 Educational Technology Plan for Albemarle County Public Schools* was developed by the Albemarle County Public School Technology Advisory Committee (TAC) and the Department of Accountability, Research, and Technology (DART). The plan will be presented to the Albemarle County School Board for approval and for submission to the state. Copies of the approved Educational Technology Plan will be distributed via the web.

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EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

Executive Summary

In order to prepare students to live, learn, work and thrive in the 21st century, Albemarle County Public Schools (ACPS) must provide access to and education in the use of emerging technologies of the Digital Age.

Determining the Needs

The 2009-2010 Educational Technology Plan for Albemarle County Public Schools is built on a foundation of research and reflects Albemarle County's commitment to long-range, effective integration of educational technology into teaching, learning, and school management. The ACPS Technology Advisory Committee, consisting of students, parents, teachers, administrators, assistive technology specialists, network specialists, and classified staff, worked through a process to make this plan a reality. Step 1 of the process involved reviewing the five focus areas delineated in the current Educational Technology Plan for Virginia, including integration, professional development, connectivity, educational applications, and accountability. Step 2 called for the Department of Accountability, Research, and Technology review and revisions of the 2007-09 Educational Technology Plan for Albemarle County Public Schools with step 3 being the final review by the Technology Advisory Committee.

Measuring the Progress of the Plan

In the current Educational Technology Plan for Virginia, the Department of Education states that structures must be put in place for the ongoing collection of data for the purpose of measuring desired outcomes of the technology plan. As detailed within the 2009-2010 Educational Technology Plan for ACPS, Albemarle County recognizes that consistent collection and analysis of data on the evolving state of educational technology ensures the effective use of technology to improve student learning and guide future decisions.

Organization

The Educational Technology Plan for Virginia is organized around five focus areas established by the Department of Education (DOE) and Virginia Educational Technology Advisory Committee (VETAC):

- **Integration** refers to the appropriate use of specific technologies as highly effective tools in facilitating learning across all levels of cognitive inquiry and development.
- **Professional development** covers in-service training with a specific focus on the Virginia Technology Standards for Instructional Personnel.
- **Connectivity** includes such concerns as the development of school division electronic infrastructures and the supporting software and hardware that would allow all users to have equitable technical access to local, state and worldwide educational resources.
- **Educational applications** relate to the instructional and administrative applications that will run over the infrastructure "highway" referenced in the Connectivity element.
- **Accountability** addresses the broad assessment of information technology and its specific value to teaching and learning environments, data management, and decision support functions.

The plan models a dynamic, collaborative planning process conducted by stakeholders and guided by data and results. The 2009-2010 Educational Technology Plan for ACPS suggests strategies and progress measures to be used by key stakeholders as they work toward the goals and targeted visions for the five focus areas.

Goals (as mandated by the Commonwealth of Virginia)

Integration

- Improve teaching and learning through the appropriate use of technology.
- Improve statewide equity in the implementation of technology-enhanced teaching and learning.

Professional Development

- Establish partnerships for identifying and delivering effective technology training to assist educators as they help students achieve high academic standards.
- Administer grant programs and financial assistance initiatives that support implementation of educational technology integration.
- Establish and maintain instructional technologist positions (including site-based technology resource teachers) in school divisions.

Connectivity

- Ensure that all public schools have access to integrated instructional and administrative services across interoperable high-speed networks.
- Ensure sufficient support for ongoing, reliable network operations.
- Provide leadership and resources to promote efficient procurement of infrastructure including the identification and procurement of emerging technologies.
- Ensure that school divisions have in place network security, filtering, and disaster recovery plans.

Educational Applications

- Improve teaching and learning through the appropriate use of network-accessible educational applications.
- Promote and develop web-based applications, services, and resources.
- Offer digital learning opportunities at state and local levels.

Accountability

- Assess the value that information technology (IT) adds to teaching and learning environments.
- Provide appropriate decision support capabilities for all stakeholders.
- Assess information technology (IT) literacy.
- Ensure that local technology plans are consistent with the state technology plan.

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

Introduction

Digital Age Literacy—the ability to acquire, evaluate and utilize vast amounts of information—has become the fourth basic skill needed by both present and future generations. Information literacy, global awareness, inventive thinking, teaming, collaborating, planning, and, managing for results are essential skills for the 21st century. The need for Digital Age Literacy extends beyond the school building and school day. The citizens of Albemarle County constitute a “community of learners” who rely on the assistance of the educational system to achieve Digital Age Literacy. ACPS is in the position to prepare citizens to apply technology to all aspects of their lives. The linkages made possible through technology will create within Albemarle County an even stronger sense of community in which all citizens can share in the teaching and learning process.

The constant and rapid change occurring in technology and its use in society limits the period of time that this plan can cover in detail. Any plan for technology integration must have the flexibility to adapt to forthcoming technological innovations. If this plan is fully supported, ACPS will become a signature division for both the state and the nation in the effective use of educational technology. The vision of ACPS is to ensure that **all** Albemarle students not only meet all Standards of Learning and master the Division curriculum, but also **exceed** the computer/technology Standards of Learning and are prepared to excel in a technology-oriented society. Without adequate resources, both technological and human, this vision will not be realized.

ACPS is fortunate to have benefited from a significant investment in technology by the state, the Albemarle County Board of Supervisors, and the Albemarle County School Board. Because of this commitment, the Division is well positioned to take advantage of the many educational opportunities provided by technology. The *2009-2010 Educational Technology Plan for Albemarle County Public Schools* provides the framework for this movement. The plan identifies five essential components of a comprehensive educational technology program: Integration, Professional Development and Support Programs, Connectivity, Educational Applications, and Accountability. Goals in each of these five areas were established by the Commonwealth, and different groups of stakeholders were asked to develop targets, strategies and measures of progress for each goal.

With the support of its School Board, ACPS continues to provide the technology infrastructure and professional development that engenders a technology-rich learning environment. The Educational Technology Plan for Albemarle County aims to capitalize on this environment by ensuring that all students develop the technology skills and knowledge to become resilient, lifelong learners who ultimately realize their potential as leaders in a technology supported information economy.

Vision

All learners believe in their power to embrace learning, to excel, and to own their future.

ACPS appropriately integrates technology into all aspects of curriculum, instruction, assessment and school management to achieve the best possible outcomes. All students learn skills that will enable them to function as productive citizens in a global, technologically oriented society. Technology extends learning for all students and builds learning communities throughout the County of Albemarle. The effective use of technology has many positive effects on the process of student learning and achievement, including:

- Enhancing regular classroom instruction by providing instructional modes that support best practices and extensive access to learning resources.
- Accommodating different learning styles and paces.
- Providing intervention for some students while encouraging others to take their learning experience in exciting new directions.

Lifelong Learning

Lifelong learning places emphasis on results. To develop the skills and habits associated with lifelong learning, students must learn beyond the simple recall of facts, understand the connections to and implications of what they learn, retain what they learn, and be able to apply what they learn in new contexts.

The Division has identified 12 Lifelong-Learner Standards that set expectations for how students learn, analyze information, and communicate. These standards have implications for student work assigned by educators and are designed to provide students with a foundation for lifelong inquiry and learning.

Lifelong-Learner Standards

1. Plan and conduct research.
2. Gather, organize and analyze data; evaluate processes and products; and draw conclusions.
3. Think analytically, critically and creatively to pursue new ideas, acquire new knowledge, and make decisions.
4. Understand and apply principles of logic and reasoning, and develop, evaluate, and defend arguments.
5. Seek, recognize and understand systems, patterns, themes and interactions.
6. Apply and adapt a variety of appropriate strategies to solve new and increasingly complex problems.
7. Acquire and use precise language to clearly communicate ideas, knowledge and processes.
8. Explore and express ideas and opinions using multiple media, the arts and technology.
9. Demonstrate ethical behavior and respect for diversity through daily actions and decision making.
10. Participate fully in civic life, and act on democratic ideals within the context of community and global interdependence.
11. Understand and follow a physically active lifestyle that promotes good health and wellness.
12. Apply habits of mind and metacognitive strategies to plan, monitor and evaluate one's own work.

Philosophy

The rapid pace of change in technology and communication systems is making traditional education obsolete in meeting the technological challenges that will confront citizens of the 21st century. In response, ACPS must embark on bold initiatives to help students develop 21st century skills. Additionally, ACPS must increase its efforts to provide staff, students and the community with the tools and training essential to prepare them for responsible citizenship in the next century. Necessary financial and human resources must be committed to the achievement of technological literacy or face the loss of human potential.

Mission

Establish a community of learners and learning, through rigor, relevance and relationships, one student at time.

ACPS is dedicated to promoting the use of technology as a tool to enable students and staff to become lifelong learners and productive members of society. The Division has developed the *2009-2010 Educational Technology Plan for Albemarle County Public Schools* to support continued use of all technologies in all learning environments, including the incorporation of technology into all educational programs, in efficient, cost-effective ways. This document is designed to assist students and staff in learning how to acquire, evaluate and utilize information, solve problems, and apply technologies in realistic and meaningful ways. ACPS will use technology to extend learning opportunities and differentiate instruction. We will use technology to increase efficiency in administrative functions and improve workflow at classroom, school and division levels.

Assessment

The Division relied on a number of assessment tools and surveys to inform its work on the development of this plan, and will continue to rely on these assessment tools as a way to gauge the effectiveness of implementation. The Division conducted the *Taking a Good Look at Instructional Technology* (TAGLIT) survey in 2002, and again in 2004. The Department of Technology annually conducts a client satisfaction survey, and in 2003, the Division administered its first student computer use survey.

Determining the Needs

The No Child Left Behind Act of 2001 emphasizes the need to support education practices with scientifically based research. In tandem, the Educational Technology Plan for Albemarle County is built on a foundation of research and reflects Albemarle County's commitment to long-range, effective integration of educational technology into teaching, learning, and school management.

In developing an educational technology plan, ACPS united leaders from a variety of stakeholder groups to review the research, share thoughts about using technology to improve student learning, and develop a collaborative vision for Albemarle County. This leadership group forms the Division's Technology Advisory Committee and consists of students, parents, teachers, administrators, assistive technology specialists, network specialists, and classified staff.

In developing a new educational technology plan for ACPS, the first task for the 2008-09 Technology Advisory Committee involved making recommendations to the Department of Accountability, Research, and Technology. With those recommendations in-hand, staff reviewed the plan and made changes aligned with the recommendations. The second task taken on by TAC was to review the changes suggested by staff and provide additional feedback and guidance.

The *2009-2010 Educational Technology Plan for Albemarle County Public Schools* is approved by the Albemarle County Public School Board and published on the Department of Accountability, Research & Technology webpage at the following URL: <http://www.k12albemarle.org/dart>.

Measuring the Progress of the Plan

The *2009-2010 Educational Technology Plan for ACPS* addresses the development of structures for measuring the progress of the plan. The structures discussed are designed to provide for easy collection and analysis of information, and at the same time, ensure the consistency and accuracy of the data. For example, one of the structures discussed within this plan involves a yearly survey or focus group conducted by the Office of Technology to inform target strategies and timeline adjustments. Most importantly, collection structures are designed to minimize the reporting burden on stakeholders. Consistent collection and analysis of data on the evolving state of educational technology ensures the effective use of technology to improve student learning and guide future decisions in procurement, deployment and staff development within ACPS.

Organization of the Plan

The *2009-2010 Educational Technology Plan for ACPS* addresses the five essential components of a comprehensive educational technology plan, as developed by the Department of Education (DOE) and Virginia Educational Technology Advisory Committee (VETAC): integration, professional development, connectivity, educational applications, and accountability. For all corresponding goals established by the DOE and VETAC, the ACPS plan identifies targets, strategies, and measures of progress. Each component is defined and related to issues of stakeholder concern, as summarized on the following page:

Integration refers to the appropriate use of specific technologies as highly effective tools in facilitating learning across all levels of cognitive inquiry and development.

- Technology Resources
- Curriculum Resources
- Instructional Resources

Professional development covers both pre-service and in-service training with a specific focus on the Virginia Technology Standards for Instructional Personnel.

- TSIP Certification
- Opportunities Offerings
- Delivery Models and Content
- Beyond TSIP
- Pre-Service

Connectivity includes such concerns as the development of state and school division electronic infrastructures and the supporting software and hardware that would allow all users to have equitable technical access to local, state, and worldwide educational resources.

- Network Infrastructure
- Technology Distribution Model
- Support for web-based Assessments (e.g., Standards of Learning Testing)
- Information Management Systems
- Staff Support (Personnel)

Educational applications relate to the instructional and administrative applications that will run over the infrastructure “highway” referenced in the Connectivity element.

- Learning Resources
- Web-based Applications

Accountability addresses the broad assessment of information technology and its specific value to teaching and learning environments, data management, and decision support functions related to K-12 schools.

- Assessing Effectiveness
- SOL, SAT, AP Exams
- Electronic Portfolios
- Survey Data

For each focus area, this plan communicates a rationale that reflects the fundamental reasons behind the corresponding goals. Strategies for accomplishing each goal include the following:

- Target or vision statement.
- Description of the Direct Benefit to Teaching and Learning for each target.
- Statement of the Reality (Current Status) of the target in ACPS schools.
- Description of the Gap, or action necessary to reach the target.
- Progress Measures or indicators that will determine accomplishment of the goal.
- Collaborative Strategies to Meet Goal, or a list of key actions or responsibilities that can be undertaken by ACPS stakeholders.
- Timeline and Responsible Person(s) for executing strategies or key actions.

This document is organized to provide support to all departments and offices in realizing their visions for the effective use of educational technologies. The strategies articulated within this document are not all-inclusive; rather, they serve as a foundation upon which to build.

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Integration

Integration refers to the appropriate use of specific technologies as highly effective tools in facilitating learning across all levels of cognitive inquiry and development.

Goals and Targets for the Integration of Technology

Goal 1: Improve teaching and learning through the appropriate use of technology.

- Target 1* Administrators have a vision for technology integration for all students.
- Target 2* Building administrators expand use of technology for school management.
- Target 3* Teachers demonstrate their expanding knowledge of technology integration by facilitating learning activities in which students use technology for productivity, research, communication, and/or problem solving.
- Target 4* Ethical use of technology resources is an expected practice for all users.
- Target 5* Teachers use technology-based intervention strategies to improve student achievement.
- Target 6* Computer/Technology Standards of Learning (SOL) are fully integrated across all curriculum areas.
- Target 7* Instructional personnel meet Technology Standards for Instructional Personnel (TSIP).

Goal 2: Improve Division equity in the implementation of technology-enhanced teaching and learning.

- Target 1* Schools strengthen their use of technology-related teacher leadership roles of Web Page Coordinator, School Technology Troubleshooter, and Technology Lead Teacher by having these teacher leaders, the school Media Specialist(s) and a school administrator form a school-level Technology Committee.
- Target 2* Instructional Coaches develop an understanding of the current level of use of technology across the schools they serve. The Coaches will work through the school Technology Committee as appropriate.

Integration: A Review of the Literature

(Main Source: Educational Technology Plan for Virginia, 2003-2009)

The Enhancing Education Through Technology Act of 2001 aims to help students become technologically literate and to promote the integration of technology into curricula, instruction, and professional development for the purpose of improving student achievement.

The advent of the information age and the emergence of an information-based economy, which requires facilities with networked information technologies and the ability to make sense of an abundance of data, have changed what it means to be literate. In 1989, the American Library Association's Presidential Committee on Information Literacy (Association of College & Research Libraries, 1989) commented on the seemingly overwhelming amount

of information available, and noted that sifting through and making sense of it required a person to be information literate. Information literacy was defined as being able to recognize when information is needed and to find, evaluate, and effectively use that information. The committee defined information-literate people as those who “have learned how to learn.” The Nine Information Literacy Standards for Student Learning, established in 1991, grew out of this work (American Association of School Librarians, 1998).

Rafferty (1999) describes three kinds of literacy: (1) representational literacy, which involves interpreting information, visuals, and media; (2) text-based or alphabetic literacy, which includes narrative, expository, and document literacy; and (3) tool literacy, which involves knowing how to use computers, networks, and other technologies. Participation in a global, information-based economy requires skills in all of these and schools can help students develop these skills by integrating technology into curriculum and instruction.

While information-literacy skills are essential for managing the abundance of information (Thornburg, 1999), many researchers agree that success in the information age, during and beyond school, also requires developing higher-level skills, such as critical thinking and problem solving (CEO Forum, 1999; Jones, Valdez, Nowakowski, & Rasmussen, 1995; Panel on Educational Technology, 1997). The National Educational Technology Standards (International Society for Technology in Education, 2000) address the use of technology for these purposes. They encompass not only basic computer operations and concepts, but social, ethical, and human technology issues such as productivity, communications, research, problem solving, and decision making. The standards assume that technology is not an end in itself but a tool for accomplishing other meaningful purposes in school, work, and life. Many states have adopted or adapted these technology standards for their students.

The expectation that educational technology will successfully support learning and student achievement depends on its effective integration in classrooms. This requires teachers to know more than basic technology skills—they must also know appropriate strategies for incorporating technology to support curricular goals. Many researchers, educators, and policymakers agree that successful technology integration emphasizes content and pedagogy, not simply hardware (Cuban & Kirkpatrick, 1998; Earle, 2002; Olson & Clough, 2001; Panel on Educational Technology, 1997; Rogers, 1999; Schwab & Foa, 2001).

Two decades of research have provided substantial information about the ways teachers accept and integrate technology into their classrooms, and about the barriers schools commonly face as they attempt to integrate technology. Several researchers describe staged models of technology adoption by teachers (Hooper & Reiber, 1995; Sheingold & Hadley, 1990). Perhaps the best documented, most widely accepted of these comes from the seminal, longitudinal Apple Classrooms of Tomorrow™ (ACOT) studies that began in 1985 (Dwyer, Ringstaff, & Sandholtz, 1991). These theories center on the idea that most teachers progress through a series of stages as they integrate technology into curriculum and instruction.

The earliest stage is usually technology-centric; teachers focus on the basic operation of hardware and software, often at the expense of instructional goals. Common to the next stage is the replication of familiar teaching strategies and learning activities through the use of technology. For example, teachers may use word processors to create worksheets for seat-based work or may create lecture materials for classroom display (Cuban, Kirkpatrick, & Peck, 2001; Earle, 2002; Pierson, 2001). At more advanced stages of integration, teachers can capitalize on the inherent capacities of technology to create learning activities and environments that could not otherwise be accomplished.

There is no common timeframe that all teachers follow, nor do all teachers reach the final stages of technology integration. Recent research indicates that one key requirement must be in place before teachers can move into the most advanced stages—the ones that most benefit student engagement and achievement. That key to the successful use of technology in education is support, both technological and pedagogical. School leaders must articulate and support a clear vision for the use of educational technologies before they can be effectively integrated into teaching and learning (Conyers, Kappel, & Rooney, 1999; Honey, Culp & Carrigg, 1999; Holland & Moore-Steward, 2000; Honey, Jones, 2001).

What constitutes support? At the building level, principals should recognize effective technology use and support the integration efforts of their teachers. They should guide their staff members in the application of meaningful learning activities supported by technology and be able to evaluate teachers’ use of technology in order to help

them improve and increase their teaching skills (Holland & Moore-Steward, 2000). While it is not essential for principals to be expert in every aspect of technology, they should be comfortable with many of the tasks and skills members of their staff member may encounter in their work and know where to go to find help when necessary (Jones, 2001).

Current technology standards for instructional personnel (TSIP) should specifically address standards for administrators or educational leaders that reflect their leadership, management, evaluation, and program responsibilities. The ISTE NETS-A standards could serve as a model for development of Virginia's standards.

Common barriers to technology integration are also presented in the literature. Ironically, access to technology is not cited as often as might be expected. In a recent study of computer use in Idaho schools, approximately one-third to one-half of the teachers in the study never actually used available technology for instructional purposes (Mathews & Guarino, 2000). Similar results were found in an earlier survey of software use in Kentucky, Tennessee, Virginia, and West Virginia, in which 83.6 percent of the respondents indicated never using software for instruction (McGraw, Blair & Ross, 1999).

Some of the often-mentioned barriers preventing technology use in classrooms are lack of time for evaluating and selecting software, developing basic skills, and planning for and incorporating technology into lessons; insufficient, inappropriate, or inconvenient training; lack of administrative and technological support; constraints of schooling, such as the structure of the school day, external testing demands, and the relative isolation many teachers experience (Cuban, Kirkpatrick, & Peck, 2001; Earle, 2002; Mathews & Guarino, 2000; Rogers, 1999). Strategies for overcoming these barriers include comprehensive planning for technology integration that considers adequate and sustainable funding for the purchase and replacement of technology as well as the hiring of support personnel to provide technical assistance. Technical support is often overlooked in planning and budgeting, but is crucial to the success of any technology integration effort (Rogers, 1999; Tiene & Luft, 2001).

Support and professional development can be considered the most critical components for effective integration of technology, but they often receive less attention than hardware, software, and network connectivity (Bailey & Pownell, 1998). Teachers from the Ameritech Classroom of the Future indicated that they owed their success in this technology-rich environment not to the hardware and software, but to the technology specialists who supported their integration and facilitation needs. The researchers noted that, however obvious the need for technical support may seem, "this point apparently needs to be made again and again and again" (Tiene & Luft, 2001, p. 26).

Given the accountability requirements in the No Child Left Behind Act of 2001 to disaggregate student assessment data, it is important to note one area in which technology has achieved great impact, and that is in providing greater access to learning resources and the general curriculum for students with special needs. Assistive technology provides support to enable students with disabilities to participate in instruction while creating responses and products that equal or closely resemble those of their peers.

Assistive hardware and software tools may include speech synthesizers, larger monitors, touch screens, scanners with scan-reading software, voice recognition systems, speech output devices, keyboards of various sizes, trackballs, joysticks, and Morse code sip and puff switches (Anderson, 1996). For many children with disabilities, simple access to computer software and word processors with grammar and spell checkers can improve performance by increasing attention, providing immediate feedback on errors, allowing the children to work at individualized levels and paces, and developing their problem-solving skills (Gregg, 1995).

Recent studies indicate the need for rethinking what and how we must teach in order to prepare our students for the world in which they live. A seemingly simplistic conclusion presented in *Apple Classrooms of Tomorrow-Today: Learning in the 21st Century* (Apple Computers, 2008) is that, "Rethinking what we must teach must come before we can rethink how we teach." Relevant 21st Century technology integration demands an "Understanding of 21st Century Skills and Outcomes." This 21st Century integration requires contemporary curriculum and contemporary learning environments. From *21st Century Learning Environments* (Partnership for 21st Century Skills, accessed on December 1, 2008), "A 21st century learning environment blends physical and digital infrastructures to seamlessly support learning."

Integration: Needs Assessment

The integration of technology into the professional practice of instructional and support staff in Albemarle County is an important and ongoing endeavor. Teachers use a variety of technological tools for productivity, research and communication with colleagues and parents. Additionally, teachers strive to design meaningful educational experiences for students in which students use many of the same tools, as well as simulations and problem-solving tools specific to math, science, social science, English, music and art.

Evidence of this integration of technology into the everyday work of our staff and students is ubiquitous. E-mail and webpage publication provide means of communication upon which all stakeholders have come to depend. Teachers' use of word processing, spreadsheet and database tools is evident in staff-and student-shared drives. ACPS provides a variety of problem-solving tools, including science probeware for the collection of real-time data. Students' electronic portfolios of work reflect their use of these technological tools.

As we move forward in designing and delivering learning activities for students, we strive to align strategies and teaching lessons with curriculum maps and pacing guides. Also planned is the development of county-wide benchmark testing as a formative assessment of both student learning and teaching methodology. Technology can provide some important tools in this endeavor.

In addition, technology has the capability to enhance instruction by:

- assisting teachers and students in the creation, manipulation and output of information.
- providing multimedia products through access to graphics and sound.
- guiding students through progressively challenging learning activities.
- gaining classroom-based access to unlimited collections of information.
- providing virtual access to places, people and things outside the classroom.
- tracking and evaluating student progress toward meeting learning objectives.

Students receive, process and retain information differently. Technology can be a useful instructional tool to help teachers address these differences. Computer-aided instruction, tutorials, team collaboration projects, computer-aided research and analysis, creation of student portfolios or multimedia presentations, educational simulations, or content-specific application software might better address learning needs of diverse populations (Education Plan of Virginia, 2003).

The design of an instrument(s) for the assessment of these instructional experiences, as evidenced through student achievement, is a goal for Albemarle County Public Schools. By using student performance tracking software for information-based decision making, instructors can collect, analyze and interpret assessments—standardized tests, teacher-made tests, and portfolios of student work—and other data to determine if an instructional practice is effective. The Division's instructional data warehouse currently provides teachers and administrations an easy-to-access "Literacy Profile" that pulls information related to the measurement of literacy skills from multiple sources. Eventually, a similar profile for "Information Literacy and Technical Competencies" will be developed. This is a long-term goal as much of the data necessary for such a profile currently does not exist.

CURRENT STATUS

According to the *2003-2009 Educational Technology Plan for Virginia*, integration "refers to the appropriate use of specific technologies as highly effective tools in facilitating learning across all levels of cognitive inquiry and development." Access to a number of critical technology, curriculum and instructional resources influences the ability of teachers to effectively integrate technology into curriculum, assessment and instruction in support of student learning.

Technology Resources

The Technology Distribution Model increases access to desktop and laptop computers, exceeds state requirements in ratio and performance, provides a projector for most instructional spaces, and provides a color laser printer for each school. The ratios presented in the following table include only supported computers.

Approximate Student-to-Computer Ratios for Each School			
Agnor-Hurt	3.85	Burley	2.79
Baker-Butler	4.06	Henley	3.36
Broadus Wood	3.40	Jouett	2.42
Brownsville	3.36	Sutherland	3.49
Cale	3.80	Walton	2.56
Crozet	3.83		
Greer	3.24	Albemarle	3.29
Hollymead	3.89	Monticello	2.65
Meriwether Lewis	3.76	Murray High	0.97
Murray Elementary	3.39	Western Albemarle	3.27
Red Hill	3.67		
Scottsville	2.15		
Stone-Robinson	3.38		
Stony Point	3.13		
Woodbrook	2.86		
Yancey	2.94		

Elements of the Division's Technology Distribution Model	
Supported Standard	Based on warranty expiration date
Replacement Cycle	Laptops = 3 years, Desktops = 4 years
Instructional Learning Space	At least 1 supported computer (desktop or laptop)
Laptop Computers	1 cart of 15 laptops per 150 students
Media Center Computers (based on enrollment)	Elementary – 5 or more Middle – 10 or more High – 15 or more
Projectors	1 for each instructional space
Color Laser Printers	1 for each school

Division-wide Applications Acquired Through the Electronic Learning Resources and Office of Technology Funding	
	AppleWorks Atomic Learning Comic Life Custom Typing iLife Inspiration KidPix Deluxe Kidspiration Microsoft Office

Subscription Services Available Through Albemarle Resource Center

ASCD
Britannica - Annals of American History
Britannica - Merriam-Webster 3rd New International Dictionary
Britannica - World Data Analyst
Britannica in Spanish
Britannica Online School Edition
Columbia American History Online
EBSCO – Middle Search
EBSCO – Primary Search
E-library (free from state)
ERS (Educational Research Service)
FinditVa (free from state)
Gale (Science Resource Center)
Gale (Student Res. Center Gold, Student Res. Center Jr., Opposing Viewpoints Resource Center)
Gale (Student Resource Center Jr.)
MARC Source
MarcoPolo
ProQuest - CultureGram
ProQuest - Historical NY Times
United Streaming (funded by grant)
World Book (World Book Kids, Online Ref Ctr., Spanish Encyclopedia)

Curriculum Resources

Albemarle's Framework for Quality Learning and local curriculum frameworks support the integration of Virginia's Computer/Technology Standards of Learning.

- An integrated approach to Internet Safety was developed. Media Specialists, technology specialists, and various central staff have conducted student and parent workshops and classes. Media Specialists, Bullying Prevention Coordinators, Guidance Counselors, and Health Teachers received additional training and certification in Winter 2007 and began integrating content across instructional areas.
- The Acceptable Use Policy (AUP) for technology student agreements was modified in Spring 2006 to address Internet Safety concerns. The entire AUP was revised in Spring 2007. Professional development related to the revision is ongoing.

Instructional Resources

Division-level funding for CTIP has been converted to staffing within the Instructional Coaching model and remains at the minimal level set by the state.

DESIRED STATE

The National Educational Technology Standards for Students (NETS*S), Virginia's Computer/Technology Standards of Learning (C/T SOL), and Albemarle County's Life Long Learner Standards require that students use technology for much more than just basic computer operations. Collectively, these standards espouse that technology is not an end in itself, but rather, a tool to be used for productivity, research, communication, problem solving and decision making. As such, there are social, ethical and legal issues involved in the use of technology. Standards require a comprehensive and integrated approach to instruction that requires more than just access to hardware resources.

Technology Resources

The Division continues to maintain a robust network capable of audio/visual (A/V) distribution. In addition, emerging technologies, including contemporary peripherals (e.g., electronic white boards, personal response

systems, probeware, etc.), are included in the distribution model. The Division has completed a “LCD projectors in all classrooms” deployment and is currently implementing a 1:1 teacher distribution model.

Curriculum Resources

All Division curricula integrate the C/T SOL. Every teacher, student and parent has a vision for the appropriate and safe use of technology, guided by curricula, an integrated and comprehensive Internet Safety program, and a thorough understanding of the Acceptable Use of Technology Policy. Students meet all curricular goals for all SOL assessments, exhibit higher-order thinking skills, and meet the Division’s goals for achievement.

Instructional Resources

The Division has shifted from the CTIP model to an Instructional Coaching model. The Coaching Model was developed with the ITRT role in mind and several former CTIPs were appointed to Coaching positions. The Instructional Coaches will participate in a NETS*T-based self-assessment and participate in relevant professional developing that will be ongoing.

Integration: Implementation Plan

CENTRAL ISSUE

Research confirms that students reap the maximum benefit from the use of technology when the infrastructure supports the integration of technology throughout the educational process. ACPS provides equitable distribution of technology based on minimum standards set for elementary, middle and high school; however, discrepancies arise due to other support by Parent-Teacher Organizations (PTOs), teacher participation in professional development, private donations, and grants. These models are associated with a replacement cycle and a software procurement system that supports the needs of all students and teachers. The commitment of ACPS to equitable technology support with teams of network specialists, technicians, and technology-informed Instructional Coaches supporting each school creates an environment in which consistent and effective use of technology is occurring. Building level Technology Lead Teachers, School Web Page Coordinators, School Technology Troubleshooters, and Media Specialists provide ongoing and ever-present professional development support, so as to foster effective technology integration.

Integration refers to the appropriate use of specific technologies as highly effective tools in facilitating learning across all levels of cognitive inquiry and development. This issue area will specifically address how technology must be seamlessly utilized in teaching and learning, and the technology integration partnerships and site-based collaborative approaches already in place can be improved to bring about higher levels of student achievement through the use of technology tools.

RATIONALE

Finding the most effective methods for integrating software and hardware technology must be a collaborative effort representing a range of stakeholders, including faculty, parents, students, higher education, business and industry, professional organizations, and the Department of Education. These models need to reflect systems that are studied and refined so as to provide a quality infrastructure—both technical and human—to foster student achievement.

Goals and Targets for Integration

Goal 1: Improve teaching and learning through the appropriate use of technology.

Target 1	Administrators have a vision for technology integration for all students.
Direct Benefit	Teaching and learning can be enhanced when principals have a vision for use of technology tools.

Reality	Principals' understanding and visions for technology integration vary across the Division.
Gap/Action	Administrators vary in their knowledge of technologies that support student achievement. Continue to share best practice through professional development opportunities for administrators, e.g., principals meetings, Administrative Leadership Team Institute, Professional Development days, etc.
Progress Indicators	1. Number of administrators that participate in technology-infused professional development increases. 2. Use of technology to support goals in School Improvement Plan (SIP)

Collaborative Strategies to Meet Goal 1, Target 1	Timeline	Responsibility
Refine offerings and set calendar offerings for all administrators	Annually	Director of Professional Development
Administrator meets with superintendent for sharing technology vision.	Annually	Superintendent
Technology is promoted as a powerful tool for learning.	Ongoing	Instructional Coaches, Central Office Instructional Leadership, Department of Accountability, Research, and Technology staff

Target 2	Building administrators expand use of technology for school management.
Direct Benefit	The use technology can support the more efficient management of school activities.
Reality	All principals conduct Learning Walks and enter the data collected in to a central database and some of them periodically analyze data within the Learning Walks application.. All principals use Outlook for e-mail and some use it for calendaring and other functions as well. All principals have cell phones and a small pilot group is testing principal use Some principals use SchoolNet to support progress reviews and most principals are adequate users of our student information system.
Gap/Action	Some principals input data in to the Learning Walks application but do not analyze the data or use it in ways that promote student learning. We must ensure all principals can and do access the data they input in to the Learning Walks application. There is little use of high-end features available within Outlook such as scheduling meetings with no conflicts and some principals are unable to run basic reports from SchoolNet. We must identify a minimum skill set that must be mastered by all school administrators and provide support and training so that all are mastered and routinely used by everyone.
Progress Indicators	1. School administrators use Learning Walk data to support School Improvement and Progress Reporting processes. 2. School administrators use SchoolNet to support School Improvement and Progress Reporting processes. 3. School administrators participate in professional learning opportunities around technology use to support the management of school activities.

Collaborative Strategies to Meet Goal 1, Target 2	Timeline	Responsibility
Ensure all new administrators receive instruction in administrative computing	Annually	New Building Level Administrator coordinator with Assistant Director for Information Management and Instructional Technology
Ensure the Learning Walks application is aligned with the current instrument	Summer 2009	Assistant Superintendent for Student Learning, Assistant Superintendent for Support Services, Assistant Director for Information Management and Instructional Technology
Provide input for and feedback on the use of technology to support the support School Improvement and Progress Reporting processes.	Summer 2009	Chief Information Officer
Work with Assistant Superintendent for Student Learning, Director of Secondary Education, and Director of Elementary Education to integrate technology in to integrate technology in to Leadership Team and leveled principal meetings	Fall 2009	Chief Information Officer, Assistant Director for Information Management and Instructional Technology

Target 3	Teachers demonstrate their expanding knowledge of technology integration by facilitating learning activities in which students use technology for productivity, research, communication, and/or problem solving.
Direct Benefit	Instruction improves, student engagement increases, and student achievement advances when teachers integrate technology in their teaching.
Reality	Teachers have varied levels of skill and ability to integrate technology.
Gap/Action	Instructional staff's knowledge and skills as defined by the TSIP needs to grow as the technology itself advances. Instructional coaches must be mindful of minimal skills required for TSIP certification and must be aware of basic tenants of technology integration.
Progress Indicators	- Usage statistics for "community technology" in a school – lab, equipment available for check out, etc. - Number of Learning Walks for which technology is indicated as a leading strategy.

Collaborative Strategies to Meet Goal 1, Target 3	Timeline	Responsibility
Annual principal review of Teacher Performance Appraisal of Technology Integration.	Quarterly	Principals

Instructional coaches conduct technology-rich workshops and consultations throughout the year, working in their role as professional developers.

Ongoing

Instructional Coaches with building principal, Lead Coach, and Assistant Director for Information Management and Instructional Technology support

Analyze data regarding use of “community technology” in schools

Quarterly

Technology Lead Teacher and other members of each school Technology Committee with support from Assistant Director for Information Management and Instructional Technology and Assistant Director for Technical Services

Target 4

Ethical use of technology resources is an expected practice for all users.

Direct Benefit

Teachers’ ethical use of technology supports the requirement for ethical use by all students.

Reality

Teachers and students are not always aware of the nuances of copyright laws as well as what constitutes plagiarism. Information literacy standards need to be taught through a consistent and systemic program.

Gap/Action

Tie professional development with attention to the copyright policies and prevention of plagiarism and other cheating issues. Work with Media Specialists to remain abreast of copyright laws and policies. Inform all teachers of basic copyright guidelines through Division communications.

Progress Indicators

1. Number of workshops for staff on copyright law and ethical use.
2. Articles in the Division Compass for teachers and Superintendent’s Advisory Bulletin for principals and other members of the Leadership Team.

Collaborative Strategies to Meet Goal 1, Target 4

Timeline

Responsibility

Continued teacher training in copyright issues and the ethical use of technology

Annually

Media Specialists

Enforcement of AUP’s

Annually

Principals

Regular review of the Student and Staff AUP’s

Ongoing

ACPS Attorneys and Division’s Technology Advisory Committee

Review of copyright brochure

Annually

Director of Professional Development and Media Services

Target 5	Teachers use technology-based intervention strategies to improve student achievement.
Direct Benefit	Improvements in student learning occur when technology is used as a tool for instruction and remediation.
Reality	Teachers' skills vary with regard to modifying instruction to meet the needs of all students.
Gap/Action	Teachers need assistance in identifying and utilizing technology-based interventions to close student achievement gap.
Progress Indicators	Students' performance and achievement increase when re-assessed after participating in technology rich interventions.

Collaborative Strategies to Meet Goal 1, Target 5	Timeline	Responsibility
Identify technology tools for instruction and remediation of the Standards of Learning and alternative assessments.	Ongoing	Instructional Leadership Team
Provide technology-based instructional delivery, support, and management systems that support the development and utilization of intervention strategies.	Ongoing	Chief Information Officer, Department of Accountability, Research, and Technology Leadership Team

Target 6	Computer / Technology Standards of Learning (SOL) are fully integrated across all curriculum areas.
Direct Benefit	Computer/Technology Standards of Learning are best mastered when students' use of technology is a routine part of their learning activities.
Reality	The state averages for Computer/Technology Standards of Learning have increased each year but are no longer being assessed at the State level.
Gap/Action	Lesson plans need to indicate that Computer/Technology Standards of Learning are regularly integrated into content instruction and activities. A component of the teacher evaluation instrument should indicate a level of technology integration.
Progress Indicators	All principals report that observations and review of teachers' lesson plans show that Computer/Technology Standards of Learning are being integrated into all curricular areas. A recognized and accepted methodology for determining student progress toward computer literacy is implemented.

Collaborative Strategies to Meet Goal 1, Target 6	Timeline	Responsibility
Teachers develop SOL-based and alternative assessment rubrics individually and as teams.	Annually	Principals
Teachers include in curriculum maps and pacing guides direct reference to Computer / Technology SOL	Annually	Principals

Classroom Walk Through Data is used to monitor technology integration

Quarterly

Principals with support from Assistant Director for Information Management and Instructional Technology

Target 7 Instructional personnel meet Technology Standards for Instructional Personnel (TSIP).

Direct Benefit	Teachers integrate technology into instruction when they are effective users of technology. Student achievement is enhanced when teachers use technology effectively and integrate technology into instruction.
Reality	67 teachers have not met the Technology Standards for Instructional Personnel.
Gap/Action	Teachers must meet the TSIP requirements in accordance with state law.
Progress Indicators	The number of teachers who are TSIP certified increases. 100% of teachers become TSIP certified.

Collaborative Strategies to Meet Goal 1, Target 7

Timeline

Responsibility

Monitor compliance of TSIP requirements.	Ongoing	Instructional Technology Leadership Team
Continue to provide training and technical assistance to instructional personnel who need to meet the TSIP.	Ongoing	Instructional Coaches
Provide Principal's with a comprehensive list of staff who need to complete the TSIP certification	Annually	Human Resources

Goal 2: Improve Division equity in the implementation of technology-enhanced teaching and learning.

Target 1 Schools strengthen their use of technology-related teacher leadership roles of Web Page Coordinator, School Technology Troubleshooter, and Technology Lead Teacher by having these teacher leaders, the school Media Specialist(s) and a school administrator form a school Technology Committee

Direct Benefit	When a cross functional team is responsible for and remains abreast of school-wide technology issues, more attention and focus is provided to overcoming barriers to integration.
Reality	Barriers to technology integration exist in schools.
Gap or Action	Access to equipment and other resources is often managed in a way that creates barriers to technology integration. Teacher facility with technology also creates variance across the technology experiences students have in schools. School technology committees must identify and collaboratively eliminate these barriers.
Progress Indicators	1. Number of schools with active technology committees. 2. Meetings of the Technology Lead Teachers support the work of the school technology committees.

Collaborative Strategies to Meet Goal 2, Target 1	Timeline	Responsibility
Share vision and action plans for technology integration with school leaders.	Ongoing, annual meetings in schools	Department of Accountability, Research, and Technology Leadership Team
Provide Instructional Coaches with opportunities to expand their own use of technology	Ongoing	Department of Accountability, Research, and Technology Leadership Team
Ensure support is provided to school technology committees.	Ongoing	Department of Accountability, Research, and Technology Leadership Team

Target 2	Instructional Coaches develop an understanding of the current level of use of technology across the schools they serve. The Coaches will work through the school Technology Committees as appropriate.
Direct Benefit	Requires ACPS to look critically at all aspects of technology integration so as to address gaps and ensure baseline access to technology-rich learning opportunities for all students
Reality	ACPS's commitment to the Framework for Quality Learning and the goals of the Board requires Division leaders to look critically at leveraging technology in all critical areas to support student achievement.
Gap or Action	Ensure all Instructional Coaches are developing skills and dispositions analogous to those articulated for ITRTs in the July 2008 Instructional Technology Resource Teacher Guidelines for Teachers and Administrators.
Progress Indicators	1. NETS*T self-assessment progress for each Instructional Coach 2. Various indicators as determined by school technology committees

Collaborative Strategies to Meet Goal 2, Target 2	Timeline	Responsibility
Instructional Coaches self-assess against the NETS*T standards.	Spring 2009	Instructional Coaches with oversight by Lead Coaches
Review of ACPS Educational Technology Plan by Instructional Coaches	Fall 2009	Assistant Director for Information Management and Instructional Technology
Introduction of Instructional Coaches to each schools' School Technology Committee	Fall 2009	Instructional Coaches with oversight by Lead Coaches
Incorporate NETS*T self-assessment data in to professional goal setting.	Fall 2009	Instructional Coaches with oversight by Lead Coaches

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

Professional Development and Support Programs

Professional Development covers both pre-service and in-service training with a specific focus on the Virginia Technology Standards for Instructional Personnel.

Goals and Targets for Professional Development and Support Programs

Goal 1: Establish partnerships for identifying and delivering effective technology training to assist educators as they help students achieve high academic standards.

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| <i>Target 1</i> | Educator training programs reflect pre-service course work and experiences that include effective approaches to integrating technology into K-12 education. |
| <i>Target 2</i> | A variety of classes, training, and resources pertaining to integrating technology effectively are available for staff development. |
| <i>Target 3</i> | Technology-related staff development offered by various entities is provided in a variety of topics and delivery methods. |
| <i>Target 4</i> | Technology leadership activities are provided to K-12 educational technology stakeholders. |

Goal 2: Administer grant programs and financial assistance initiatives that support implementation of educational technology integration.

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| <i>Target 1</i> | Grant programs and alternative sources of funding that support educational technology are administered. |
| <i>Target 2</i> | Teacher education institutions, businesses, organizations, and private entities become partners in the implementation of technology related grants focusing on technology integration. |

Goal 3: Establish and maintain instructional technologists (including site-based technology resource teachers) in school divisions.

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| <i>Target 1</i> | Instructional Coaches are available to all schools. |
| <i>Target 2</i> | All Instructional Coaches have consistent access to technology-rich professional development. |
| <i>Target 3</i> | Instructional Technology Lead Teachers are available for all K-12 schools. |

Professional Development: A Review of the Literature

(Source: Educational Technology Plan for Virginia 2003-2009)

The classroom teacher determines the success or failure of any school's efforts to integrate technology, and teacher preparedness influences technology's potential to positively affect student achievement (Sivin-Kachala & Bialo,

1999). For schools to capitalize on their technology investments, it is crucial that teachers understand and feel comfortable using technology in their classrooms and know how to choose and use appropriate technologies that will support teaching and learning.

Unfortunately, a majority of our nation's teachers do not have this knowledge. As recently as 1999, only one-third of teachers reported feeling "well prepared" or "very well prepared" to use computers and the Internet for classroom instruction (National Center for Education Statistics, 2000). Those who reported feeling prepared were more likely to use technology for instructional activities than teachers who felt unprepared. The International Society of Technology in Education has developed technology standards for teachers and administrators that can guide divisions in their professional development programs.

Schools underestimate the importance of professional development for increasing their return on technology expenditures because many do not budget sufficient funding for training. The U.S. Department of Education (1996) recommends that districts set aside 30 percent of their technology budgets for professional development, but research indicates that expenditures for this vital component fall closer to 10 percent (Zeisler in AEL, 2000a). The recent reauthorization of the Elementary and Secondary Education Act (No Child Left Behind Act, 2001) does more than recommend professional development expenditures. It requires that 25 percent of federal technology funds be spent on professional development.

Most teachers reported spending 32 hours or less in technology-related professional development over a three-year time period (National Center for Education Statistics, 2000). In this short period of time, teachers do not receive adequate training in either basic technology skills or the more complex skills required for effectively integrating technology into the curriculum.

Too often, the content and scope of this training are flawed. Single-day comprehensive workshops that focus on a single hardware or software application are common but are often ineffective (Beavers, 2001). These "one-size-fits-all" workshops seldom address different levels of proficiency and provide little or no follow-up (Snoeyink & Ertmer, 2001-2002).

While all teachers need a core of basic technology skills, many sources emphasize the importance of training that ties technology use to curricular goals (Beavers, 2001; Garet, Porter, Desimone, Birman, & Yoon, 2001; Johnson & Kardos, 2002; Mulqueen, 2001). Active learning with hands-on participation is often recommended, but regardless of format, training requires substantial support, follow-up, and evaluation. Only 67 percent of teachers report the availability of follow-up training (National Center for Education Statistics, 2000). Results from a national sample of teachers (Garet et al., 2001) indicate that improving professional development depends less on format than on duration, collective participation, and three core features: content knowledge, opportunities for active learning, and alignment with other learning activities.

Most teachers report that some professional development is available; however, these opportunities are not as readily available for administrators. The National Staff Development Center developed guidelines that propose a constructivist approach to professional development and suggest that teachers and administrators collaborate in such activities as action research, conversations with peers about the basic nature of instruction and keeping journals, and projects that involve family and community members in student learning (as cited in Coley, Cradler, & Engel, 1997). Improving opportunities for training administrators is addressed by the Apple Classroom of Tomorrow™ Teacher Development Center Project. Administrators are encouraged to attend the program with a teacher team, and they must commit to providing release time and daily planning time for teachers as well as time for teachers to reflect on their work. Administrators also increase staff awareness through public acknowledgment of teachers' efforts (as cited in Coley, Cradler, & Engel, 1997).

New teachers also require sustained, school-based professional development (Johnson & Kardos, 2002). Many of the nation's teacher training institutions provide very limited basic technology skills and integration training; but regardless of the level of technology proficiency of new teacher candidates, they will be unlikely to integrate technology into practice if they do not see it being used in their schools (National Council for Accreditation of Teacher Education, 1997). This powerful socializing aspect of schools and schooling is corroborated by Jones (2001), who adds that the first place all teachers look for technology help is their peers.

Jones (2001) further notes that technology can support the follow-up to training demonstrated to be so critical to professional development. Teachers can develop technology integration skills by participating in online discussion forums, e-mail correspondence, mailing lists, and chat rooms. Online professional development communities allow teachers to collaborate with colleagues, technology professionals, and teacher education faculty outside of class-time at their own convenience. These online models of training and support can be adapted to address the needs and issues of local divisions and replicated through the use of relatively simple telecommunications tools such as e-mail and mailing lists.

The Enhancing Education Through Technology Act of 2001 supports professional development for teachers, to help them integrate technology with curriculum and instruction and use technology as a tool to access additional and ongoing training and research. The Milken report (1999) also calls for providing Virginia teachers with expanded opportunities to improve their technology skills and to learn to use technology to achieve instructional goals. Research shows that the time spent training teachers in technology correlates to increased student performance (Sivin-Kachala & Bialo, 1999).

Support Programs

As is true with the introduction of any new and complex technology to an endeavor, it has been necessary to create a support system in schools to manage, operate, and effectively use computer networks. Support is provided at the division, school, and classroom levels. Integration of technology into instruction can occur only when adequate technological support is readily available. There are three separate facets of educational technology support in schools. The first is administrative; the second is technical; and the third is instructional. Listed below are major job responsibilities for each area of support.

Technology Administrators

Technology administrators manage programs and provide educational technology leadership in their school divisions and often work with colleagues on regional issues. They develop and implement technology plans, design policies, write and manage grants, manage budgets and purchasing, perform technical support and supervise employees. They often have advanced educational and administrative degrees and usually have been teachers.

Technical Support

Technical support consists mainly of centralized and school-based (occasional regional sharing) support for information networks. This may include selection, configuration, installation, operation, repair, maintenance, software installation, troubleshooting, security management, and creation and upgrade of servers, computers, and networks. Technical support staff also are often involved with data collection, Web site management, program development, telephony, management of student and financial systems, maintenance of computerized devices, and operation of distance learning networks. Information technology specialists often lack educational certification but possess specific technical skills and certifications.

Instructional Technologists

Instructional technologists work with teachers, other staff members, and students to enhance instruction through the use of technology in the classroom. These support people help teachers integrate technology into classrooms, train teachers to use technology and electronic software effectively, help with curriculum and content development that utilizes educational technology resources, aid with classroom management, co-teach using technology, create training aids, participate in selection of appropriate educational software to augment class content, and assist students with technology-related activities or projects. They are experienced, licensed educators who possess a combination of good academic and technical knowledge.

Although most American schools have personnel assigned to educational technology administrative duties, there have been no guidelines established by the United States Department of Education concerning the appropriate level of staffing. Several states have established technical support guidelines, which vary widely. Only three states have established guidelines for the number of instructional technologists needed in schools. Business methodology development organizations have established technical support guidelines for businesses.

According to information provided by school divisions on the 2000-2001 Capacity Survey and a targeted staffing survey done in fall 2002, the overall average full-time equivalent (FTE) for all support personnel is .48 per 100 computers and .39 per 100 computers for technical personnel. This ratio of personnel to computers is often used in information technology analysis of technology staffing patterns. Although the formulas used by many methodology development organizations like the Gartner Group are complex, in business the number of computers is thought to be a good indicator of the size of the network and the subsequent number of staff personnel required to maintain and operate the system. The Gartner Group and other such organizations recommend that there should be from 1.0 FTE per 50 computers to 1.0 FTE per 100 computers, depending on the work of the business, to adequately support its systems. According to the Consortium for School Networking (CoSN), data gathered by International Data Corporation disclosed that most businesses actually have a ratio of 1 FTE per 50 computers. It is unclear whether this model can be directly applied to schools, but it is unlikely that many schools could afford to support such a ratio. The disparity between businesses and schools is markedly different. When business computers are not useable, many workers become unproductive; teachers can and are expected to use other methods to teach children when networks or computers are not working. While the FTE-to-computer approach works for purely technical support, there is no comparable business methodology for staffing for administrative and instructional technologists.

Many states have recognized the need for technology staffing in their Educational Technology Plans (as has Virginia) and have provided guidelines for staffing responsibilities. Generally, these guidelines have addressed the reasons for the staffing and the value of adequate staffing to support technical and instructional needs. Many do not have state board of education approval or recommended staffing levels. A review of state guidelines revealed that few states have substantively addressed the issue of technology staffing. The Massachusetts Department of Education, in its Local Plan Benchmark Standards for the year 2003 established a goal of 1 technical FTE per 100-200 computers and a goal of at least 0.5 FTE instructional technologists to support every 30 to 60 users integrating technology into the curriculum. Maryland has established a ratio of 1 technical support person for 300 computers in its 2002 technology plan. Michigan, through a federal grant, developed the Michigan Technology Staffing Guidelines document that provides a rationale for technology staffing, establishes job responsibilities, and includes a worksheet and formula to assist school districts to determine local needs. This is an excellent planning document for local assessment of technical and instructional staffing needs, but it does not establish specific recommended levels. Texas uses a version of the StaR Chart. The CEO Forum School Technology and Readiness (STaR Chart) characterizes school readiness in four stages: early, developing, advanced, or target. Texas established the following technical support guidelines: early - no support, developing - 1:750, advanced - 1:500, and target - 1:350. The state of Washington has adopted the ISTE (International Society for Technology in Education) Technology Support Index. Oregon has established a technical support staff ratio of 1 to 100/250 users. California proposes adequate staffing as 1 per 300 in newer schools and up to 1:50 in older schools. North Carolina has set staffing ratios at many levels with the major ones being: 1 technology administrator per district, 1 technology coordinator for every 10 schools, 1 technical facilitator per school, and 1 technical support per approximately 100 computers. As can be seen from the research, each state has adopted staffing recommendations that are deemed reasonable by that state.

The International Society for Technology in Education (ISTE), a national and internationally recognized group devoted to the promotion of educational technology in education, has created a rubric called the Technology Support Index. While the index is intended to help school divisions determine many support categories beyond the guidelines, it is a good model for structuring the guidelines. The index characterizes the level of technology capability into four stages. These broad stages of technological capability in schools are emergent (beginning support capability), islands (isolated areas of effective support), integrated (very good support provided in most areas), and exemplary (excellent support in most areas). The Technology Support Index rubric defines each stage and then assigns an FTE staffing range to each. Again, the index provides staffing ratios only for information technology technicians and does not address other computerized devices commonly used in schools. Ratios included in the index are: emergent-level computer to staff ratios exceed 250 to 1, island-level ratios are between 150 to 1 and 250 to 1, integrated-level ratios are between 75 to 1 and 150 to 1, and exemplary -level ratios are less than 75 to 1.

Professional Development: Needs Assessment

ACPS created the position of Curriculum Technology Integration Partner (CTIP). At that start, a limited number of CTIPs supported multiple schools and served as consultants, trainers, resource providers, task facilitators, and, in general, agents for change.

At the same time, in compliance with a Virginia DOE directive, ACPS began offering expanded professional development opportunities requiring all instructional staff to complete a portfolio of work showcasing their understanding of the Technology Standards for Instructional Personnel (TSIP) by June 2003. (Currently, teachers new to Albemarle County from outside of the Commonwealth are asked to complete their portfolios with their recertification.) ACPS is transitioning from the CTIP model to an Instructional Coaching Model for the 2009-2010 year. In addition to access to Instructional Coaches, schools will designate a Technology Lead Teacher who will receive a stipend for supporting technology integration and leading the school's technology committee.

Professional development is critical to ensure the effective use of technology to improve student learning. As such, professional development should be available, ongoing and relevant to instructional needs and learning objectives. The Technology Lead Teacher and Instructional Coaching models will be the primary resource by which Albemarle County builds the capacity of educators in the schools.

Developing the knowledge and skills of the Instructional Coaches is important to the effective use of technology by teachers as a professional tool, and by students as a tool in their learning activities. In addition, building relationships among the Instructional Coaches, Lead Coaches, school technology committees, and school administrators is crucial as Albemarle County moves to a more refined and ubiquitous use of technology by teachers and students.

CURRENT STATUS

The importance of professional development in technology integration is well documented. Teachers pass through stages of technology use from *entry*, where they learn about new technologies, to *invention*, where they discover new uses for technology tools, often combining multiple technologies. The importance of just-in-time learning is also documented, and is supported by our placement of Instructional Coaches in each building.

TSIP Certification

1098, or 94 percent, of instructional staff have completed TSIP. Responsibility for TSIP certification rests with the school administration. The Technology Lead Teacher may support the principal in this process by reviewing portfolio submissions. Instructional Coaches will play no role in the evaluation of TSIP progress but may assist teachers in developing the necessary competencies to meet the TSIP requirements as appropriate.

Opportunities Offerings

There has been very little focus on TSIP certification through our central workshop offerings. With the transition from the CTIP model to the Instructional Coaching Model, we will revisit the need for structured workshops on topics and skills related to technology integration.

Delivery Models and Content

- On-site, on-demand—through Instructional Coaches and Technology Lead Teachers
- Optional online professional development (ThirteenEdOnline; PBS Teacherline). These offerings are supported by PDRP or are free.

Beyond TSIP

ACPS averages 25 to 30 participants per year in the National Teacher Training Institute (NTTI) and has sent over 150 teachers through NTTI as part of the SVTC NCLB grant. Fifteen ACPS teachers have achieved National Educational Technology Standards for Teachers (NETS*T) Certification and 10 are recognized as NTTI Master Teachers. These offerings are entirely grant funded.

Pre-Service

The Technology Infusion Project (TIP) is a collaborative project between ACPS and the University of Virginia's Curry Center for Technology and Teacher Education. The project involves pre-service teachers working with in-service teachers on collaborative technology projects. This is the longest running such project in the nation and has received international attention.

DESIRED STATE

A comprehensive professional development plan that supported state and division goals for technology integration would contain the elements listed above taken to new levels. A comprehensive database would track the professional development activities of staff, additional content—for all staff—would be delivered by a variety of partners in a variety of ways. Online delivery of professional development and resources would alleviate constraints of time and distance. Endorsing the National Educational Technology Standards for Teachers and Administrators would support *student* acquisition of those technology skills identified as essential for their success in the 21st century!

TSIP Certification

All staff certified by their renewal dates.

Opportunities Offerings

Opportunities offerings are reflective of division focus on TPA, FQL, and division goals; integrated technology components.

Delivery Models and Content

A comprehensive program of division supported professional development, including increased support for the Instructional Coaching model; a comprehensive plan to offer online delivery of professional development content developed locally, by universities, and by subscription.

Beyond TSIP

Obtain grant or division funding to support a program that moves teachers towards NETS*T certification. Support teacher/administrator attendance at NTTI conferences.

- Instructional Coaches obtain NETS*T Certification
- Identify Technology Lead Teacher/Administrator partners for technology-related conference attendance

Pre-Service

Continue to support the TIP program; continue to partner with the Curry center to pilot new technologies and associated professional development.

Technology Leadership and Vision

Encourage and support the development of and participation in technology leadership and vision professional development activities for Instructional Coaches, Technology Lead Teachers, principals, and division instructional leadership.

Professional Development Staffing

Support the development of a cadre of training staff that can develop and deliver professional development materials and workshops related to all aspects of the Division's instructional programs, including the use of new and emerging technologies, meeting the Division's goals, obtaining technology certification, etc.

Professional Development: Implementation Plan

CENTRAL ISSUE

Professional development for educational technology stakeholders continues to be a critical issue (if not the top priority in educational technology utilization) related to the effective use of technology in teaching and learning. The availability of professional development opportunities, materials, and resources is adequate and equitable in

ACPS. Site-based support systems for technology integration are in place. Technology Resource Teachers (Instructional Coaches), Instructional Technology Lead Teachers, and technology troubleshooters are assigned to each school as are technical services teams consisting of a network specialist and hardware technician.

One challenge is in continuing to develop the skills of these key support staff. Another challenge is to increase the opportunities for site-based professional development through the leveraged use of the Instructional Coaches combined with the leadership and professional development skills of the department chairs and lead teachers.

RATIONALE

Large investments in educational technology hardware and software will not produce significant results in student achievement and learning unless adequate, consistent, and high-quality staff development and training resources are available to all school divisions and teacher training programs. Support systems for technology integration at the school level have proven critical to the follow-up on investments in hardware, software, and staff development.

Goals and Targets for Professional Development

Goal 1: Establish partnerships for identifying and delivering effective technology training to assist educators as they help students achieve high academic standards.

Target 1	Educator training programs reflect pre-service course work and experiences that include effective approaches to integrating technology into K-12 education.
Direct Benefit	All teachers are familiar with and trained in identified high-yield technology integration practices and tools to increase student learning.
Reality	Not all schools have access to the same hardware and software in order to implement high-yield technology integration practices. All Instructional Coach positions are full time. Time for practice and tool investigation is critical. Administrators are not required to be trained in identifying high-yield technology integration practices.
Gap or Action	The Office of Technology can work to develop a plan to ensure that there is at least minimal access to all technologies identified as “high-yield”. Grants written for the school district can aid in acquiring funds to ensure all schools have equitable access. Alternatives to deemed effective hardware and software can be investigated and implemented until technologies are acquired. Training time is incorporated into pre-service and staff development.
Progress Indicators	1. Schools are equipped with necessary hardware and software to achieve high-yield technology practices. 2. Observations of high-yield technology integration are made by administrators during Learning Walks and noted in teacher performance appraisal evaluations. 3. Students are more engaged and active in the classroom and have a higher level of comprehension based on grades and standardized test scores.

Collaborative Strategies to Meet Goal 1, Target 1	Timeline	Responsibility
Review inventory of available hardware and software to determine needs of each school to make minimal purchases.	Spring 2009	Department of Accountability, Research, and Technology
Identify conference and grant opportunities to supply schools with needed equipment.	Ongoing	Technology Leadership Team

Identify teachers not utilizing strategies from administrator Learning Walk data to develop a training plan.	Ongoing	Principals with support from Assistant Director for Information Management and Instructional Technology
Set aside time for teachers and administrators to work with their school's Instructional Coaches on technology integration and other strategies to improve learning.	Ongoing	Instructional Coaches and principals with support from Lead Coaches.
Identify researched/known high-yield strategies of technology integration for student learning to determine needed hardware and software.	Ongoing	Assistant Director for Information Management and Instructional Technology with Lead Coaches, Technology Lead Teachers
Ensure implementation of strategies occur and provide on-site support for staff in need of additional training.	Ongoing	Assistant Director for Information Management and Instructional Technology with Lead Coaches, principals

Target 2	A variety of classes, training, and resources pertaining to integrating technology effectively are available for staff development.	
Direct Benefit	Student engagement and achievement is enhanced by effective technology use facilitated by teachers who are trained in technology integration. Teacher efficacy is enhanced when teachers use and model technology tools for assessment, data management, communication with parents, students, other teachers and the community.	
Reality	It is difficult for teachers to keep up with new knowledge in the emerging technology tools. Teachers have varied levels of ability and comfort with integrating technology and often do not have time for Ongoing professional growth. As a result, there is wide variance between how technology impacts instructional best practices between classrooms. After-school and in-school training and curriculum development opportunities exist, but there is no mandate for teachers to participate. Some teachers do but many don't. Training opportunities need to be constantly revised to align with current and emerging technologies.	
Gap/Action	A variety of opportunities will be provided for teachers to learn to use technology as a tool to support research-based, high-yield instructional strategies. Teachers will guide students as they learn to transform and produce knowledge through the use of technology. There will be the expectation that all teachers will participate in ongoing collaborative conversations that move them forward in their acquisition of 21st Century skills. Teachers will be held accountable for this growth by their school-based learning communities. Principals will ensure that PLC time is allocated for these broader issues and collaboration.	
Progress Indicators	1. Observations of high yield technology integration are made by administrators during walk-throughs and noted in teacher performance evaluations. 2. Students are more engaged and active in their learning, and as a result, demonstrate a higher level of comprehension based on observation of performance, grades, and standardized and benchmark tests.	

Collaborative Strategies to Meet Goal 1, Target 2	Timeline	Responsibility
Provide professional development both within the entire school system, online, and at individual school. The Division and schools will be responsible for providing prearranged, sustained time at any of the following times: • Release time • After school faculty meetings • PLC planning time • Compensated PLC time beyond school calendar • Mini conferences • Restructured calendar year • Building and county level professional development days	Ongoing	Instructional Coaches, Assistant Director for Information Management and Instructional Technology, Technology Lead Teachers
Each teacher is expected to develop SMART goals related to powerful learning practices as part of their Teacher Performance Appraisal.	Ongoing	Principals
Administrators using the data provided by TPA Learning Walks will hold teachers accountable.	Ongoing	Principals with support from Assistant Director for Information Management and Instructional Technology

Target 3	Technology-related staff development offered by various entities is provided in a variety of topics and delivery methods.
Direct Benefit	Student achievement is enhanced by effective technology use facilitated by teachers who are trained in technology integration.
Reality	Teachers have varied levels of ability and comfort with integrating technology. Funding for expert/vendor presentations is limited. Not all Instructional Coaches are high-end technology integrationists, There is inconsistent opportunity for staff development.
Gap/Action	Principals, Lead Coaches, Director of Elementary Education, Director of Secondary Education, and the Assistant Director for Information Management and Instructional Technology must maintain Ongoing communications regarding the professional learning needs of teachers and Instructional Coaches.
Progress Indicators	1. Track staff development offerings to ensure staff needs and requests are met. 2. Increased technology use within schools recorded in Learning Walks. 3. Observe student engagement and comprehension levels when technology is integrated based on classroom dynamics and test scores. This can be achieved through a tie-in with teacher 's TPA SMART goals. 4. Feedback from provided staff opportunities indicates staff needs and requests are met. 5. Feedback from Instructional Coaches/Teacher on their collaborative experiences.

Collaborative Strategies to Meet Goal 1, Target 3	Timeline	Responsibility
Provide professional development opportunities both within the entire school system, online, and at individual schools.	Ongoing	Instructional Coaches, Assistant Director for Information Management and Instructional Technology, Technology Lead Teachers
Based on staff needs and requests, investigate the feasibility of providing expert/vendor trainings.	Ongoing	Department of Accountability, Research, and Technology, Technology Lead Teachers
Review feedback and staff survey data to refine and drive professional development offerings.	Ongoing	Instructional Coaches, Assistant Director for Information Management and Instructional Technology with Director of Professional Development, Technology Lead Teachers

Target 4	Technology leadership activities are provided to K-12 educational technology stakeholders.
Direct Benefit	Collaborative partnerships among educational technology stakeholders are often the most efficient and cost-effective method for providing educators access to up-to-date technology, training of best practices, and extensive online resources. Technology stakeholders maintain a high level of training and knowledge which drives the technology vision for the county, leads to more and better staff development, and, ultimately, increases student achievement.
Reality	Virginia Society of Technology in Education, MarcoPolo Foundation, VITAL, the Virginia Community of Learning, and Virginia's public television stations are examples of partnerships that promote and support technology integration. Stakeholders are not always identified and, therefore, not provided or held accountable in pursuing technology leadership activities. Funding for these activities is not always available.
Gap/Action	Both current and new sources for developing local, regional, and state partnerships need to be explored, established, and supported. Awareness and appropriate use of existing and developing partnerships by all teachers needs to increase. Identify stakeholders at all levels. Include as part of their performance appraisal requirements for attending conferences, giving presentations, or participating in other technology leadership activities.
Progress Indicators	1. Technology integration is observed, prevalent, and expected at all levels. 2. The results and findings of participating in these activities are implemented within organization, school, classroom, etc. through staff development trainings or put to use in daily work. 3. Stakeholders meet performance appraisal expectations regarding technology leadership activities at time of evaluation.

Collaborative Strategies to Meet Goal 1, Target 4	Timeline	Responsibility
Identify technology leadership activities in which stakeholders can take part.	Ongoing	Department of Accountability, Research, and Technology
Provide information to stakeholders regarding activities and require attendance/participation.	Ongoing	All K-12 Educational Technology Stakeholders, Administrators, Albemarle Resource Center
Stakeholders share out findings and implement findings into their practice.	Ongoing	Instructional Coaches

Goal 2: Administer grant programs and financial assistance initiatives that support implementation of educational technology integration.

Target 1	Grant programs and alternative sources of funding that support educational technology are administered.
Direct Benefit	Support innovative projects and programs to increase technology in the classroom.
Reality	Innovative ideas and pilot programs would not be funded without the support of Grant Programs.
Gap/Action	Teachers are not made aware of current grant programs. The lack of teacher awareness of these programs causes them to be under-utilized.
Progress Indicators	1. Number of grant applications received 2. Number of grants programs approved by the County 3. Number of grants which incorporate technology

Collaborative Strategies to Meet Goal 2, Target 1	Timeline	Responsibility
Advertise Fall and Spring grant application opportunities.	Ongoing	Department of Accountability, Research, and Technology Leadership Team
Evaluate and award grants.	Annually	Department of Accountability, Research, and Technology Leadership Team

Target 2	Teacher education institutions, businesses, organizations, and private entities become partners in the implementation of educational technology integration.
Direct Benefit	Provides additional funding sources that will enhance technology integration across all classrooms.
Reality	Grants tend to be school specific than division-wide.

Gap/Action	Socioeconomic makeup of ACPS does not denote economic need when compared to other lower SES divisions. .
Progress Indicators	Funding received. Become grant recipients.

Collaborative Strategies to Meet Goal 2, Target 2	Timeline	Responsibility
Provide current grant information to teachers through web page.	Ongoing	Assistant Director for Information Management and Instructional Technology with the Communications Coordinator

Goal 3: Establish and maintain instructional technology positions (including site-based technology resource teachers) in ACPS.

Target 1	Instructional Coaches are available in all schools.
Direct Benefit	Research review indicates that the degree of technology integration increases when planning consultation and just-in-time instructional technology assistance is available. Thus, technological needs are filled more efficiently and utilization of technology may increase as well. Immersion within the school culture is also a benefit for the technology training to happen.
Reality	While each school will be served by several Instructional Coaches, not all coaches are high-end technology integrationists.
Gap/Action	Continued professional development is needed to support all Instructional Coaches, and increased content knowledge, skill, and vision for all Instructional Coaches.
Progress Indicators	1. Professional development plan for Instructional Coaches. 2. Number of consultations, workshops, and study groups delivered or facilitated by Instructional Coaches.

Collaborative Strategies to Meet Goal 3, Target 1	Timeline	Responsibility
Develop and deploy Professional Development (PD) Plan that offers a variety of technology-rich opportunities for Instructional Coaches.	Fall 2009	Lead Coaches, Director of Elementary Education, Director of Secondary Education, and the Assistant Director for Information Management and Instructional Technology , Director of Professional Development

Develop system(s) where Technology Lead Teachers and Instructional Coaches share effective, quality training materials.	Ongoing	Lead Coaches, Director of Elementary Education, Director of Secondary Education, and the Assistant Director for Information Management and Instructional Technology , Director of Professional Development
Continue to request additional Instructional Coach and Technology Support positions through the budget initiative process based on needs.	Ongoing	Office of Instruction, Department of Accountability, Research, and Technology

Target 2	All Instructional Coaches have consistent access to technology-rich professional development.
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Direct Benefit	The degree of technology integration increases when just-in-time instructional technology assistance is available.
Reality	With the transition from the CTIP model to the Instructional Coaching model, the role of the stipend for Technology Lead Teachers will increase. While each school will be served by several Instructional Coaches, not all coaches are high-end technology integrationists.
Gap/Action	Professional development is needed to support all Instructional Coaches.
Progress Indicator	Instructional Coaches and Lead Coaches will develop mechanisms to indicate progress as part of the annual evaluation process.

Collaborative Strategies to Meet Goal 3, Target 2	Timeline	Responsibility
Develop professional development plans for Instructional Coaches.	Annually	Lead Coaches, Assistant Director for Information Management and Instructional Technology
Identify resources for professional development for Instructional Coaches.	Ongoing	Lead Coaches, Director of Elementary Education, Director of Secondary Education, and the Assistant Director for Information Management and Instructional Technology , Director of Professional Development
Continue to offer a wide range of technology-rich professional development opportunities to all Instructional Coaches.	Ongoing	Lead Coaches, Director of Elementary Education, Director of Secondary Education, and the Assistant Director for Information Management and Instructional Technology , Director of Professional Development

Target 3		Instructional Technology Lead Teachers are available in all schools.
Direct Benefit		Research review indicates that the degree of technology integration increases when planning consultation and just-in-time instructional technology assistance is available. Thus, technological needs are filled more efficiently and utilization of technology may increase as well. Immersion within the school culture is also a benefit for the technology training to happen.
Reality		With the transition from the CTIP model to the Instructional Coaching model, the role of the stipend for Technology Lead Teachers will increase. .
Gap/Action		Continued professional development is needed to support all Technology Lead Teachers, and increased content knowledge, skill, and vision for all Technology Lead Teachers.
Progress Indicators		1. Professional development plan for Technology Lead Teachers. 2. Number of consultations, workshops, and study groups delivered or facilitated by Technology Lead Teachers.

Collaborative Strategies to Meet Goal 3, Target 3	Timeline	Responsibility
Develop and deploy Professional Development (PD) Plan that offers a variety of technology-rich opportunities for Technology Lead Teachers.	Fall 2009	Assistant Director for Information Management and Instructional Technology
Develop system(s) where Technology Lead Teachers and Instructional Coaches share effective, quality training materials.	Ongoing	Lead Coaches, Director of Elementary Education, Director of Secondary Education, and the Assistant Director for Information Management and Instructional Technology , Director of Professional Development

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

Connectivity

Connectivity includes such concerns as the development of state and school division electronic infrastructures and the supporting software and hardware that would allow all users to have equitable technical access to local, state, and worldwide educational resources.

Goals and Targets for Connectivity

Goal 1: Ensure that all public schools have access to integrated instructional and administrative services across interoperable high-speed networks.

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| <i>Target 1</i> | Every instructional and administrative area in every school has a sufficient number of network connections to support the high bandwidth requirements of current and future instructional and administrative applications. |
| <i>Target 2</i> | Each school division connects all school facilities through a wide area network with sufficient bandwidth to accommodate instructional and administrative needs. |
| <i>Target 3</i> | Each school local area network has reliable high-speed access to the Internet capable of supporting instructional and administrative applications and initiatives. |
| <i>Target 4</i> | An integrated suite of instructional and administrative applications supported by a standards-based enterprise architecture for K- 12 schools is in place. |

Goal 2: Ensure sufficient support for ongoing, reliable network operations.

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| <i>Target 1</i> | Adequate support personnel are in place to operate and support the K-12 school technology infrastructure. |
| <i>Target 2</i> | Support personnel for K-12 school infrastructure have appropriate technical skills. |
| <i>Target 3</i> | School systems have customer support systems in place to address technical problems in a timely and efficient manner. |
| <i>Target 4</i> | School divisions plan for the total cost of ownership (TCO) associated with K-12 technology. |
| <i>Target 5</i> | School division uses telecommunications equipment to improve education. |

Goal 3: Provide leadership and resources to promote efficient procurement of infrastructure, including the identification and procurement of emerging technologies.

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| <i>Target 1</i> | The K-12 school technology procurement process is efficient and cost effective. |
| <i>Target 2</i> | School divisions are regularly informed about emerging technologies for instruction and administration. |

Goal 4: Ensure that school divisions have in place network security, filtering, and disaster recovery plans.

- Target 1* Policies, procedures, and technologies are in place to ensure that computing resources are secure and recoverable.
- Target 2* School divisions maintain an up-to-date Acceptable Use Policy (AUP) and effectively use network filtering solutions.
- Target 3* School divisions have appropriate and effective network and data security policies and systems.

Connectivity: A Review of the Literature

(Source: Educational Technology Plan for Virginia 2003-2009)

Increased use of the World Wide Web for commerce, government, and education has truly created a global market for goods, services, and even people. Now, more than ever, graduates must compete with their peers around the world.

A 2002 report from the U.S. Department of Commerce highlighted the growing use of the Internet by all Americans, whatever their race, gender, age, income, or education. From August 2000 to September 2001, the number of Americans online (143 million) surpassed 50 percent of the population—an increase of 26 million users in 13 months. Children and teenagers use computers and the Internet more than any other age group, with 90 percent (48 million) of all children between the ages of 5 and 17 reporting using computers and 58.5 percent of those using the Internet. By the age of 10, children are more likely to use the Internet than adults of any age beyond 25. These figures have clear implications for the future importance of being online.

According to the U.S. Department of Commerce (2002), by making Internet access available, schools have dramatically reduced the “digital divide”—the inequities of access among groups of race, gender, and age. In this study, children and young adults of all age groups reported using the Internet “outside home” nearly as often as “at home,” with the most prevalent use “outside home” being at school. Black and Hispanic children still have significantly lower access to computers and the Internet at home than do whites, Asian-Americans, and Pacific Islanders. However, current levels of computer and Internet use at school by black and Hispanic children show no significant differences when compared with other ethnic groups. Students from lower-income families, too, have similar access to computers and the Internet at school, as do students from families with higher incomes.

Virginia ranks third nationally in the percentage of information technology jobs, but fifteenth in computer and Internet use in schools (Atkinson, 2002). This gap supports the Milken (1999) recommendation that Virginia continue to invest in infrastructure and connectivity to reach underserved schools and classrooms. Likewise, the Enhancing Education Through Technology Act of 2001 requires states to ensure equitable access to technology for all students, and encourages and supports initiatives designed to expand technology access for disadvantaged students and high-need schools.

While many schools have worked hard to achieve a 5:1 student-to-computer ratio, advances in computing hardware since this national goal was announced (U.S. Department of Education, 1996) provide novel strategies for increasing access that are not tied to the “modern multimedia computer” of just a few years ago. More important than simply reaching a ratio goal is providing sufficient access to computing hardware and software needed to reach student achievement goals. Greater power in ever-smaller computing devices makes some small, affordable units viable options for achieving or even beating the 5:1 goal. Many states and districts have established a goal of one-to-one computing.

Some tools for providing access include notebook (also called laptop) computers and the scaled-down relatives of notebooks called network appliances. Smaller handheld computers, often called personal digital assistants (PDA's), and graphing calculators can support a variety of peripherals, such as small keyboards, cameras, and probes, for taking measurements such as salinity, temperature, and pressure readings. Purchased in classroom sets, stored on

portable carts, and capable of wireless transmission, many of these devices provide on-demand computing access to students at critical points in instruction.

Several states, school districts, and universities are experimenting with laptop initiatives to provide greater access to computing power for teachers and students. Projects such as the Maine Association for Middle Level Education (<http://www.mamleonline.org/tech.html>) seek to increase access to learning materials and extend learning possibilities beyond the walls of the school and after the last bell has rung. In a review of a similar initiative, Rockman (2000) found that students with laptops demonstrated significantly greater access to technology in terms of hardware and Internet use than students without laptops. In addition, students with laptops scored significantly higher on an essay writing task; however, the reviewers had difficulty demonstrating differences in standardized test scores. Teachers, perhaps, benefited most from access to laptops—the researchers noted significant changes in teaching strategies and learning activities for their students.

Beyond the current focus on providing computers and basic Internet access to students and teachers, what does the next decade hold in store? What priorities are emerging for current and future generations of students? One immediate answer is broadband access.

Broadband simply refers to the capacity of a telecommunications service—either wired or wireless—to transmit large data sets and simultaneous data streams (e.g., video or audio-visual media) almost instantaneously (Web-Based Education Commission, 2000). Of the 94 percent of schools that reported being connected to the Internet (Meyer, 2001), more than 30 percent have slow connections, such as 56K frame-relay or even slower dial-up connections. The dramatic rise in Internet use and the increasing complexity of web-based data and applications demand more capacity to transmit voice, video, and data quickly and reliably across the globe.

Broadband access will support the potential of networked technologies to provide rich content and educational resources, such as digital libraries with HDTV-quality video, CD-quality audio available on demand, and virtual libraries that provide remote access to scientific instruments (Web-Based Education Commission, 2000). While many of the nation's classrooms already use web-based resources for instruction, these are primarily text- and graphic-based resources. The ability to more readily transmit voice and video data will approximate face-to-face interactions and will allow all participants—students, teachers, and content experts—to have more natural interactions. Broadband access will deliver more sophisticated information and resources, such as real time transmissions from remote instruments located deep within the ocean. It will better support the creation of new learning environments that use simulation and virtual reality—technologies that hold the potential to create complex, stimulating environments that were heretofore inaccessible or even impossible. In addition, these richer networked environments will allow users to capitalize more effectively on diverse learning styles and preferences and become more engaged in learning and less encumbered by technology.

Reliable, affordable broadband access will support the realization of the “promise of the Internet” (Web-Based Education Commission, 2000). This promise includes centering learning on the student, focusing on the strengths and needs of individual learners, and making lifelong learning a practical reality. Clarke and Hermens (2001) list positive attributes of what they call “e-learning.” E-learning is scalable at less cost than traditional education. There is greater access to e-learning—every Internet connection is a classroom. Finally, e-learning is timely; information and knowledge can be updated more cost effectively than more traditional forms of instruction. Schools, colleges, and even businesses contribute to the realization of this promise by investing in online education that supports instruction and training.

At least a dozen states (Carr, 2000) have established or are developing virtual high schools. Online education found an early niche with students seeking advanced subjects not offered by their home campuses and remedial courses that allow greater time and flexibility in processing and completing coursework, with students who had schedule conflicts in or after school, and students with physical disabilities or medical needs (Harris, 2000). It is estimated that only 60 percent of traditional high schools offer Advanced Placement (AP) courses, with the average being only five AP courses per school (Rourke, 2001). Virtual high schools already extend access to as many as 10 AP courses from a single provider. The online movement continues to blossom, with several schools offering full curricula that are often for sale across state lines; and the Enhancing Education Through Technology Act of 2001 supports the further development of such efforts.

Online education may also address other problems. Rourke (2001) reports that online education may be one strategy for handling growing student enrollments, overcrowded schools and outdated buildings, and teacher shortages. Julie Young (as cited in Rourke, 2001) principal of the Florida Virtual School, one of the nation's most successful online schools, also sees teacher retention and renewed enthusiasm as a byproduct of online learning.

To realize the potential of broadband access and the new and emerging technologies it will support, school leaders must become competent in technology planning and managing funding demands. Indeed, many states and funding agents tie appropriations to the existence of a well-developed technology plan (Brush, 1998). Technology planning has become an integral part of annual budgeting, training, data gathering, and assessment of school performance (Cartwright, 1996; U. S. Department of Commerce, 1996; AEL, 2000a). However, contrary to traditional budgeting practices in many school districts, a technology plan should span more than one year and have enough flexibility to accommodate new and emerging technologies and teaching strategies, as well as changes supported by evaluation data.

The business world typically considers technology a tool to increase productivity. Businesses use complex calculations to determine the "total cost of ownership" of their technology expenditures. Total cost of ownership, or TCO, refers to the costs associated with new equipment beyond the purchase price. It includes costs of software, supplies, upgrades, and infrastructure needs, as well as the human costs of support personnel and professional development. These costs are offset by the anticipated increases in productivity and generation of revenue-bearing products and services over the life span of a piece of equipment.

Schools, too, must consider the TCO of their technology expenditures. However, calculations used by businesses often do not translate well for schools, nor do calculations transfer well from district to district. A study by the International Data Corporation in 1997 (as reported in Consortium for School Networking, 1999) calculated the total cost of ownership for a school with 75 computers at \$2,251 per year per computer, while costs for a comparably-sized business were \$4,517. Differences were attributed to less expensive hardware and software, fewer support personnel for schools, and a projected life span of five years for school computers compared to three years for business computers. The factors that influence a district's cost calculations include support personnel, age and number of computers, number of platforms and software applications, as well as the type of network.

According to the Web-Based Education Commission (2000), new technologies can increase productivity in schools by streamlining administrative procedures, reducing expenditures on resources that require physical storage and quickly become outdated, and by delivering instruction, assessment, and even teacher training online. The report warns, though, that productivity gains in business took three decades to emerge and similar educational gains will require schools to explore new funding models. As the commission reports, "it makes little sense to use 30-year bonds to purchase equipment that should be replaced in three years" (Web-Based Education Commission, 2000, p. 120).

An important concept, then, is interoperability. Defined as "the ability of a product to co-exist in a multiple vendor environment and operate with other products" (University of New Hampshire, 2002, <http://www.iol.uhn.edu/testsuites/main.html>), interoperability is key to capitalizing on existing technology while defining and identifying complimentary components to support seamless integration. Standards defining maximum utilization of technology will address long-term issues and provide benchmark parameters for future purchases.

The pervasive use of networked technologies and the ease with which data can be created and shared pose problems that have implications for schools. It is not only easier to obtain and reuse materials found on the Internet or in digital resources, it is also easier to misuse them and to find inappropriate or even harmful material. A recent survey (National Public Radio, 2000) indicated that many Americans have concerns about use of the Internet. Most respondents (85 percent) worry about the possibility of dangerous strangers contacting children, and 84 percent have concerns about the availability of pornography on the Internet. This last fear may be justified, as the survey reports that 24 percent of children between the ages of 10 and 17 say they have seen a pornographic Web site. A later report by the U.S. Department of Commerce (2002) found that, even though 68.3 percent of respondents indicated they were more concerned about children viewing inappropriate information on the Internet than on television, this has not resulted in lower levels of Internet use at home.

Educators must also be mindful of privacy issues and security to prevent unauthorized individuals from obtaining and altering student data (Olivia, 1999; Owens & Cohen, 1998). Administrators and teachers must be aware of how students are using the school's technology and must monitor what students publish (Burke, 2000). Schools must also respond to policies and legislation that dictate requirements to maintain accreditation (Anderson, 1996); provide access to all students by following requirements of the Americans with Disabilities Act (Consortium for School Networking, 1999); and uphold copyright and intellectual property rights of content creators, as specified in the Copyright Act of 1976 and the Digital Millennium Copyright Act of 1998.

Decisions regarding technology use must reflect local policy and community needs, while also acknowledging the potential of educational technology to prepare students to work and live in an information age. Many schools have harnessed the Internet and other technologies to support instruction and help their students practice acceptable and responsible use. The most popular approaches include teaching and monitoring strategies, Acceptable Use Policies (AUP's), and filtering software (Burke, 2000; Mason, 1997; Pownell & Bailey, 1999).

An Acceptable Use Policy (AUP) is a set of guidelines governing use of the Internet for school activities (Anderson, 1996; Rockman, 1998; Truett, Scherlen, Tashner, & Lowe, 1997). AUP's are often district initiatives and may require students and their parents or guardians to sign letters of agreement. AUP's vary greatly, but most districts agree the primary purpose of the policy is to support research and instruction. Most AUP's stem from existing policies regarding codes of behavior and use of traditional resources, such as books, magazines, television, and radio (AEL, 2000a).

The Virginia Department of Education provides an extensive resource to help divisions develop effective AUP's. This Web site, <http://www.pen.k12.va.us/VDOE/Technology/AUP/home.shtml>, is often recommended as a model of helpful information.

No one strategy can solve all use problems and no school should rely solely on a technology solution. Training for parents, teachers, and students will help reduce the number and severity of problems encountered during use of technology and the Internet (Burke, 2000).

Connectivity: Needs Assessment

According to the *2003-2009 Educational Technology Plan for Virginia*, connectivity “includes such concerns as the development of state and school division electronic infrastructures and the supporting software and hardware that would allow all users to have equitable technical access to local, state, and worldwide educational resources.”

CURRENT STATUS

- Technology Distribution Model: Evaluation and Revision
- Support for Instructional and Administrative Information Management Systems
- Technical and Logistical Support for Assessment (SOL Testing)
- Staffing Required to Provide Real Time Support and Enhanced Systems Engineering Services

DESIRED STATE

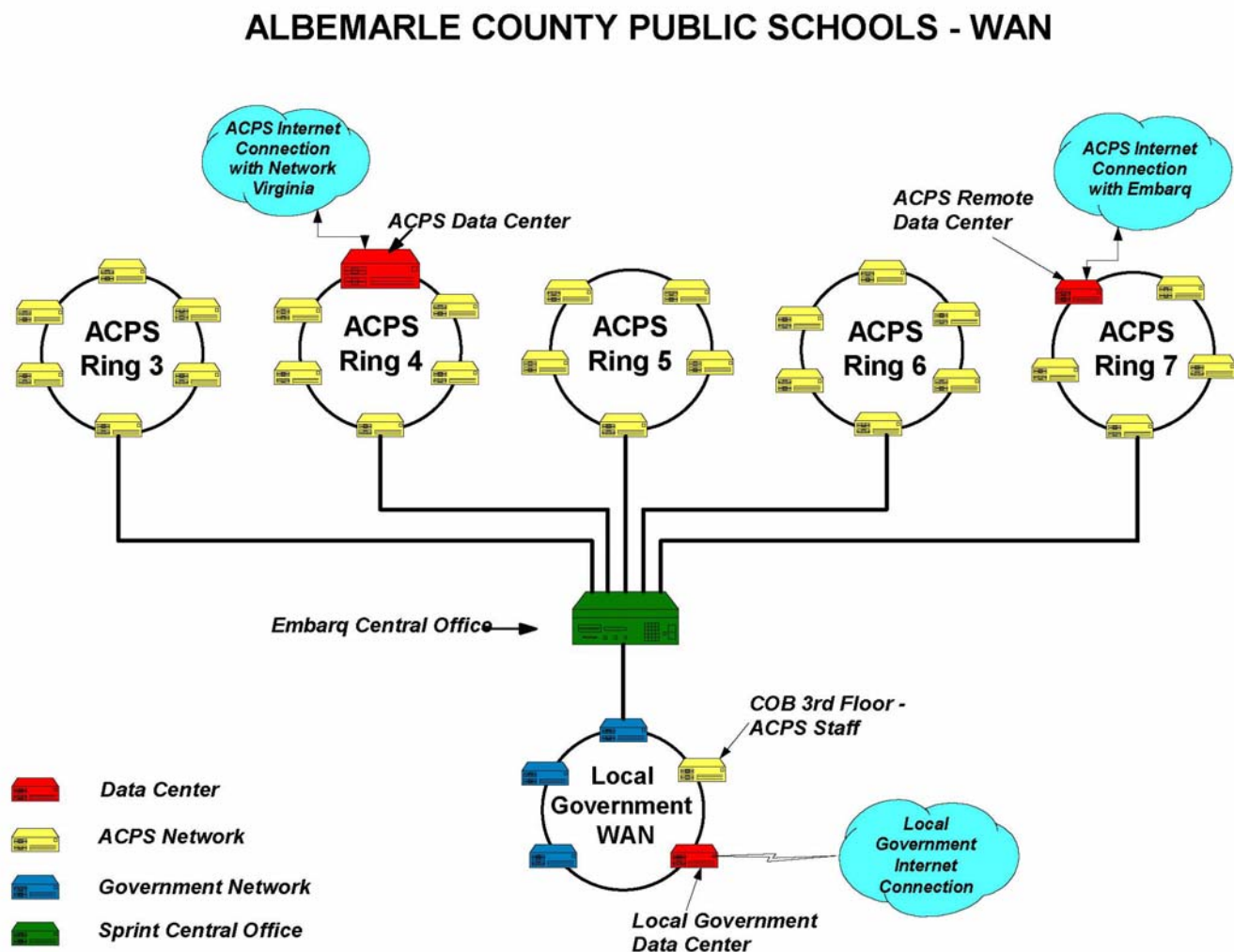
Continued growth of the utilization of the network for online SOL testing, delivery of curriculum support materials, delivery of online coursework, etc., will continue to have an impact on the ability of the network to perform as designed.

- Network Infrastructure (see Current/Desired State table)
- Technology Distribution Model: Evaluation and Revision 2008-2009
- Support for Instructional and Administrative Information Management Systems
- Technical and Logistical Support for Assessment (SOL Testing)
- Staffing Required to Provide Real Time Support and Enhanced Systems Engineering Services

The following table details the current and desired states of issues affecting the performance of the Division's network, including access to resources and technical support.

	Current State	Desired State
Wide Area Network (WAN)	WAN connectivity is sufficient at all locations (100Mbit to each school, 1Gbit to each Data Center)	Increase WAN connectivity to 1Gbit or greater at individual locations as needed
Internet Service	2 physically separated connections through 2 different service providers: • 45Mbit connection with Network Virginia • 100Mbit connection with Embarq • Bandwidth monitoring and traffic shaping is also in place	Increase bandwidth to the Internet as needed.
Data Center: Instructional and Administrative Information Management Systems	• E-mail Services • Web Services • Student Information System • Elementary Report Card • SIF for State Integration • Courseware Services • Library Management System • EDEP After School System • IP Telephony and Unified Messaging Services • Systems for Support Services	Replace or upgrade hardware, software, and operating systems as needed. Install required equipment for new systems as needed.
Data Center: Infrastructure Systems	• Internet Connectivity • Firewall • IP Telephony Equipment • Active Directory Servers • Web Filter • SPAM Filter • DNS • DHCP • Anti-Virus & Automatic Update Servers • Wireless Security • Data, Voice, and Video Networking Equipment • Backups and Archives	Replace or upgrade hardware, software, and operating systems as needed. Install required equipment for new systems as needed.
Offsite Data Center	• Internet Connectivity • IP Telephony Equipment • Offsite Backup Servers • Wireless Security	Replace or upgrade hardware, software, and operating systems as needed. Install required equipment for new systems as needed.
Site-based Infrastructure	• Schools and departments have high speed networks capable of supporting voice, video, and data • Schools have local servers to support instructional applications and home directories for staff and students	Increased storage capacity is needed to accommodate multimedia content and student portfolios. This occurs as a matter of course when a new server is implemented.
Telecommunications Services	• IP Telephony serving nearly 50% of the Division • Includes E911 support, unified messaging and digital faxing	Continue replacing outdated phone systems with IP telephony service across the Division as funding permits until 100% VoIP.

Figure 1: WAN Diagram



Connectivity: Implementation Plan

CENTRAL ISSUE

Understanding that infrastructure support, security and maintenance are critical for educational technology success, ACPS has invested a significant amount of funding and resources to ensure reliable connectivity to local and outside resources. The Division's infrastructure was designed to support data, voice and video for all schools and departments.

RATIONALE

All schools need to be connected to robust, high-speed, wide area networks capable of providing voice, video and data communication, with equal access to local, state and worldwide resources. The maintenance and support of technology infrastructures include the need for consistent funding streams to support technical personnel, replacement schedules, and other key maintenance issues.

Goals and Targets for Connectivity

Goal 1: Ensure that all division schools have access to integrated instructional and administrative services across interoperable high-speed networks.

Target 1	Every instructional and administrative area in each school division site has a sufficient number of network connections to support the high bandwidth requirements of current and future instructional and administrative applications.
Direct Benefit	A sufficient number of high bandwidth network connections provides a technology-rich teaching and learning environment, and allows access to instructional and administrative applications and resources used to enhance student achievement and school management.
Reality	• Every instructional and administrative area has sufficient network connections with appropriate means to provide future expansion. • The Division participates in the web-based SOL Technology Initiative using a standards-based infrastructure within each school. • All schools to comply with state and local standards for wiring and electrical infrastructure installations and upgrades. • The Division ratio of multimedia, networked computers to students is approximately 1:3 • The Division currently replaces supported computers on a 3- to 4-year cycle.
Gap/Action	• No immediate gap has been identified related to the network infrastructure. Networks are monitored and maintained for sufficient bandwidth to support growing instructional and administrative needs • The Division computer to student ratio for grades 3-12 is approximately 3:1 compared to the VA DOE recommendation of 1:1 • The Division computer to student ratio for grades 1-2 is approximately 3.5:1 compared to the VA DOE recommendation of 3:1
Progress Indicators	1. The number of network connections increases as needed. 2. The computer to student ratio for grades 3-12 improves, pending funding 3. The computer to student ratio for grades 1-2 improves, pending funding

Collaborative Strategies to Meet Goal 1, Target 1	Timeline	Responsibility
Review each instructional and administrative area for sufficient network connections and provide additional equipment where needed	Ongoing	Office of Technology Staff
Review Technology Distribution Model to determine appropriate equipment density and present recommendations	Annually by June	Instructional Technology Leadership Team
Request additional funding to improve computer to student ratios in grades 3-12 and 1-2, as needed	Through annual budget process	Assistant Director, Technology Services

Target 2	School Division connects all school facilities through a wide area network with sufficient bandwidth to accommodate instructional and administrative needs.
Direct Benefit	Connecting all school facilities through a high bandwidth wide area network provides a technology-rich teaching and learning environment, and allows access to the Internet, division communication and information management systems, and instructional applications. The wide area network also allows collaboration between schools.
Reality	• The Division participates in the web-based SOL Technology Initiative using a wide area network capable of supporting increased bandwidth requirements when needed • State and local standards were used to design and support the wide area network • School Division facilities are connected through a redundant fiber backbone with 1Gbps Ethernet access into the primary and off-site data centers, and 100Mbps Ethernet access into each school
Gap/Action	No immediate action is required. Networks are monitored and maintained for sufficient bandwidth to support growing instructional and administrative needs
Progress Indicators	School and department WAN ports are upgraded as needed.

Collaborative Strategies to Meet Goal 1, Target 2	Timeline	Responsibility
Monitor and review bandwidth utilization for each WAN connection and upgrade as needed	Ongoing	Department of Accountability, Research, and Technology
Work with WAN service provider to ensure infrastructure is scalable and meets changing needs of School Division.	As Needed	Department of Accountability, Research, and Technology

Target 3	Each school local area network has reliable high-speed access to the Internet capable of supporting instructional and administrative applications and initiatives.
Direct Benefit	Reliable high-speed access to the Internet provides students, faculty, and staff access to local, state, and worldwide educational applications and resources. This access enables a technology-rich teaching and learning environment leading to enhanced student achievement and improved school management.
Reality	• The Division participates in the web-based SOL Technology Initiative using a high-speed local area network in each school • Industry standards were followed for designing and supporting local area networks in all schools • The School Division maintains redundant high-speed connections to the Internet through separate providers. A DS3 (~45Mbps) connection is located in the primary Data Center, and a 100Mbps connection is located in the off-site Data Center. • Every local area network in the Division uses a 100Mbps switched Ethernet backbone, while many have a Gigabit backbone within each facility.
Gap/Action	No immediate action is required. Bandwidth utilization is monitored to support growing instructional and administrative needs.

Progress Indicator Internet connections are upgraded as needed.

Collaborative Strategies to Meet Goal 1, Target 3	Timeline	Responsibility
Monitor and review bandwidth utilization of each Internet connection.	Ongoing	Department of Accountability, Research, and Technology
Follow security and redundancy best practices by maintaining backup power supply units, firewall protection, content filtering, and network routing technologies.	Ongoing	Department of Accountability, Research, and Technology

Target 4	An integrated suite of instructional and administrative applications supported by a standards-based enterprise architecture for schools and departments is in place.	
Direct Benefit	An integrated suite of instructional and administration applications supported by a standards-based enterprise architecture provides the School Division with an environment to infuse technology into all aspects of curriculum, instruction, assessment, and school management to achieve the best possible outcomes for student achievement.	
Reality	- The School Division participates in the web-based SOL Technology Initiative for building a standards-based technical architecture - The School Division supports both Macintosh and Windows operating systems on an industry-standard network architecture - Cross-platform storage options are provided on School Division servers allowing access from both operating systems - The School Division is migrating towards browser-based applications for core systems such as the student information system, library automation system, and instructional management system - The School Division has also installed a Zone Integration Server with vertical integration to the State. Plans are being developed to deploy horizontal SIF solutions - Users maintain separate passwords for multiple databases - The Microsoft Office productivity suite is provided for all supported Windows-based and Macintosh-based computers	
Gap/Action	- The School Division is evaluating the deployment of technology solutions which provide single sign-on via integration with Active Directory. Users currently have to maintain multiple passwords to access different key resources. - The School Division is also evaluating the use of horizontal SIF agents to connect core information management systems. - Current operating systems and office productivity applications have not been deployed	
Progress Indicators	- Implementation of single sign-on solutions for key information management systems such as the student information system and instructional management system. - Implementation of horizontal SIF Agents - Development of plan to deploy current operating systems and productivity applications	

Collaborative Strategies to Meet Goal 1, Target 4	Timeline	Responsibility
Implement single sign-on solutions for instructional management system. Continue to evaluate and prefer AD integration technologies.	June 2009	Department of Accountability, Research, and Technology
Evaluate SIF agents for student information system.	June 2009	Department of Accountability, Research, and Technology
Continue to establish cross-platform storage options on school-based and central servers.	June 2009	Department of Accountability, Research, and Technology
Continue migration to web-based applications.	Ongoing	Department of Accountability, Research, and Technology
Develop plan to test, evaluate, and implement current operating systems (Mac OS / Windows) and productivity applications (Office)	Ongoing	Office of Technology Staff

Target 5	School Division uses telecommunications services to improve education.
Direct Benefit	Telecommunications services improve education by providing staff with technological tools which make them readily accessible, and providing remote access to educational resources.
Reality	• Key administrative and instructional areas in each building are equipped with telephone service • Sites using the IP telephony system have access to unified messaging and digital fax services • The IP phone system is used for the weather and emergency communication hotline • Cell phones are provided for staff requiring mobile accessibility • Leadership Team members are provided remote access using VPN technology
Gap/Action	• Not all schools and departments are on the same telephone system • Cell phone coverage is not adequate in all areas
Progress Indicators	1. Number of schools and departments migrated to the IP telephony system 2. Strategies developed to improve cell phone coverage or replaced with other Wi-Fi device for use within a building

Collaborative Strategies to Meet Goal 1, Target 5	Timeline	Responsibility
Continue migrating schools and departments to the IP phone system as funding permits	Ongoing	Department of Accountability, Research, and Technology
Work with service providers to evaluate and implement strategies for improving cell phone coverage (bi-directional antennas, different phones, etc.). New cell phone contract. Provide “smart phones” to admin and tech staff for Exchange syncing.	Ongoing	Department of Accountability, Research, and Technology, Office of Technology Staff
Evaluate and implement strategies for providing Wi-Fi based phone service.	Ongoing	Department of Accountability, Research, and Technology, Office of Technology Staff

Goal 2: Ensure sufficient support for ongoing, reliable network operations.

Target 1	Adequate support personnel are in place to operate and support the K-12 school technology infrastructure.
Direct Benefit	Adequate support services promote the consistent and reliable operation of the K-12 school technology and ensure dependable access to instructional and administrative resources.
Reality	- The Department of Accountability, Research, and Technology has a team of Systems Engineers to support WAN operations and core information management and communications systems - The Office of Technology has a team of Network Administrators to handle school-based network operations and provide desktop support - The Office of Technology has a team of Technology Support Specialists to provide desktop, peripheral, and A/V support - The Office of Technology has a Help Desk for providing over-the-phone technical support and other types of assistance - Office of Technology staff is offered technical training programs and professional development opportunities - Technology Troubleshooters in each school are trained to identify and fix minor technical problems - Additional staff is required to improve real-time technical support
Gap/Action	- Funding is not available in the Division technology budget to provide an appropriate ratio of equipment to desktop support staff - No plan is in place to potentially share technical staff among divisions - Improved standard operating procedures are needed to ensure support protocols and standardization
Progress Indicators	- The number of technical support staff currently employed - Development of a feasibility study for potentially sharing technical staff among local divisions - Improved standard operating procedures documentation

Collaborative Strategies to Meet Goal 2, Target 1	Timeline	Responsibility
Collect call tracking and other work load data to support budget funding request for additional technology support staff.	Annually in November	Assistant Director, Office of Technology
Develop feasibility study to consider sharing technical staff among local divisions.	Summer 2009	Assistant Director, Office of Technology
Develop and maintain up-to-date standard operating procedures for department work flow and operations. Investigate implementation of help desk/asset tracking/project management software.	Ongoing	Office of Technology Staff

Target 2	Support personnel for school and department infrastructures have appropriate technical skills.
Direct Benefit	Support personnel with appropriate technical skills will be better able to provide timely and efficient support for maintaining the instructional and administrative infrastructure.

Reality	- The Office of Technology budget targets appropriate funding per technical support employee for necessary training - Resources are provided for technology support personnel to obtain industry standard certifications - Support personnel within the Office of Technology have appropriate technical skills, but support methods are continuously researched and evaluated for improved efficiency - School-based support personnel usually require additional training
Gap/Action	- No immediate gaps have been identified for the Office of Technology staff. However, internal and external training is regularly used to enhance technical skills. - Not all Office of Technology technical staff members have at least one industry standard certification - School-based support staff varies in their knowledge and technical skills
Progress Indicators	- The number of professional development and training opportunities provided to Office of Technology staff - The number of industry standard certifications held by Office of Technology staff - The number of professional development and training opportunities provided to school-based staff

Collaborative Strategies to Meet Goal 2, Target 2	Timeline	Responsibility
Provide additional professional development and technical training opportunities for Office of Technology staff	Ongoing	Assistant Director, Office of Technology
Develop a time bound plan for ensure technical staff hold at least one industry standard certification	Summer 2009	Assistant Director, Office of Technology
Review the baseline skill set needed by school-based staff, and provide basic training and ongoing related technical training	Ongoing	Office of Technology Staff

Target 3	School Division has a customer support system in place to address technical problems in a timely and efficient manner.
Direct Benefit	An expedient customer support system allows the Division to address technical problems in a timely and efficient manner reducing disruption to educational technology activities.
Reality	- Services levels for technical problem resolution are included in the Division technology plan - The Office of Technology provides customers a web-based service for requesting technical assistance - The Office of Technology uses a Help Desk to receive and answer support calls, and a team of Systems Engineers, Network Administrators, and Technology Support Specialists to provide onsite and remote technical support - Each school has a Technology Troubleshooter that functions as a first-responder to technical issues within their building
Gap/Action	- The Division does not participate in collaborative agreements for sharing specialized technology personnel with other school divisions or entities - The current number of technical staff in the Office of Technology is inadequate to provide the level of real time support needed by faculty, staff, and students - School-based support staff varies in their knowledge and technical skills

Progress Indicators	1. Development of a feasibility study for participating in collaborative agreements for sharing specialized technology personnel with other school divisions or entities
	2. Number of Office of Technology staff
	3. Number of training opportunities for school-based staff
	4. Results of division-wide and site-based customer satisfaction surveys

Collaborative Strategies to Meet Goal 2, Target 3	Timeline	Responsibility
Develop a feasibility study for participating in collaborative agreements for sharing specialized technology personnel with other school divisions or entities	June 2009	Assistant Director, Office of Technology
Develop improved methods for collecting and reporting a true representation of the amount of work performed by the Office of Technology staff that may justify requests for additional technical positions	Ongoing	Assistant Director, Office of Technology
Provide ongoing training opportunities for school-based support staff	Ongoing	Office of Technology Staff
Evaluate Technology Troubleshooter Model for effectiveness and present recommendations	June 2009	Office of Technology Staff
Administer division-wide and site-based customer satisfaction surveys to identify continuous improvement areas	Annually in May	Assistant Director, Office of Technology
Develop strategies to dynamically align Office of Technology staff and resources for providing real-time support to schools and departments when needed	Ongoing	Assistant Director, Office of Technology, and Staff

Target 4	The school division plans for the total cost of ownership (TCO) associated with K-12 technology.
Direct Benefit	Planning for and understanding the total cost of ownership enables the school division to fully support and utilize technology investments, and make informed and cost-effective decisions relating to the acquisition, implementation, and support of technology resources.
Reality	- Total cost of ownership factors are part of the Division's technology planning strategy - The school division currently uses a three- or four-year computer replacement cycle, based on computer type and general use, to ensure all supported computers are covered under the manufacturer's warranty. This is facilitated through direct purchases and zero-percent lease agreements. - Peripherals such as printers, projectors, and other audio-visual equipment are replaced as needed. - Although considered unsupported, technical staff occasionally works on antiquated equipment causing delays in the service of supported equipment.
Gap/Action	- Funding reductions would create challenges for maintaining the three-year replacement cycle and purchase of peripherals, thus increasing the total cost of ownership of technology equipment - The current level technical staffing is inadequate to provide the amount of real-time technology support needed by students, faculty, and staff.

- Changes in schools and department staffing can cause confusion about technology support protocols and procedures

Progress Indicators	1. Requested funding to maintain a technology replacement cycle supported by the manufacturer's three-year warranty 2. Requested funding to maintain staffing for providing real-time technology support 3. Published technology support procedures and protocols for schools and departments
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Collaborative Strategies to Meet Goal 2, Target 4	Timeline	Responsibility
Review total cost of ownership factors regularly related to the acquisition, implementation, and support of technology resources.	Ongoing	Assistant Director, Office of Technology, and Staff
Revise Office of Technology standard operating procedures using total cost of ownership as a critical factor along with the instructional and administrative impact.	Ongoing	Assistant Director, Office of Technology, and Staff
Request additional technology funding and staffing related to total cost of ownership factors.	Through annual budget process	Assistant Director, Office of Technology
Publish updated technical support protocols and procedures, and share with schools and departments regularly.	Ongoing	Assistant Director, Office of Technology, and Staff

Goal 3: Provide leadership and resources to promote efficient procurement of infrastructure, including the identification and procurement of emerging technologies.

Target 1	The K-12 school technology procurement process is efficient and cost effective.
Direct Benefit	Utilizing an efficient and cost effective procurement process can result in significant cost savings for the Division, and provides students, faculty, and staff access to current and emerging technologies in support of Division instructional and administrative goals.
Reality	• The Office of Technology uses an efficient and cost effective procurement process to acquire current and emerging technologies • The Division uses state and regional contracts, or negotiates local contracts, adhering to county purchasing regulations • An efficient accounting system is used for budgeting and expenditure tracking • Technology acquisition is facilitated through direct purchases and lease agreements • Guidelines and specifications are established for hardware and software purchases
Gap/Action	• The Office of Technology staff is working to improve the inventory management system used to track Division technology. • Reminders are occasionally needed by schools and departments to seek approval through the Office of Technology when purchasing technology with site-based funds. Doing so ensures technical compatibility, competitive pricing, and that technical support will be provided

Progress Indicators	1. An improved inventory management system is implemented for tracking Division-wide technology 2. The documentation produced and provided to schools and departments about purchasing technology with site-based funds
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Collaborative Strategies to Meet Goal 3, Target 1

Timeline

Responsibility

Implement an improved Division-wide technology inventory management system (completed)

June 2009

Office of Technology Staff

Produce documentation for schools and departments about purchasing technology with site-based funds

December 2009

Office of Technology Staff

Target 2

School division staff members are regularly informed about emerging technologies for instruction and administration.

Direct Benefit

Keeping school division staff members regularly informed about current and emerging technologies allow decision-makers to consider the implementation and utilization of appropriate technologies for improving or automating administrative processes, integrating technology into best instructional practices, and fostering creativity and innovation.

Reality

- Leadership Team members, Instructional Coaches, Department of Accountability, Research, and Technology, and Office of Technology staff are regularly informed about emerging instructional and administrative technologies through Ongoing communication and training. Current delivery systems include e-mail, web sites, journals, workshops, seminars, conferences, in-services, and the Superintendent's Advisory Bulletin.
- New technologies are occasionally modeled at administrative and instructional meetings across the Division
- Mechanisms are being investigated for central distribution of video-on-demand (instructional and informational programming) across a video network

Gap/Action

- A consistent process is needed for regularly disseminating information about emerging technologies to all instruction and administration staff members. There are effective pockets of information sharing across the Division, but a more systematic approach may reach a wider audience.
- New technologies need to be more consistently modeled at administrative and instructional meetings across the Division

Progress Indicators

1. A feasibility study is developed for a central distribution of instructional and informational video-on-demand system.
2. Information delivery systems and content are evaluated for continuous improvement.
3. New methods for publishing emerging technologies information are developed.
4. New technologies are modeled and piloted.
5. Surveys are used to evaluate the effectiveness of the communication about emerging technologies.

Collaborative Strategies to Meet Goal 3, Target 2

Timeline

Responsibility

Develop a feasibility study for implementing a central video-on-demand distribution system

June 2009

Office of Technology Staff

Develop new ways to disseminate emerging technologies information such as an Office of Technology newsletter	June 2009	Office of Technology Staff
Model the use of emerging technologies at division-wide events such as Leadership Team meetings, CAI Institutes, Making Connection Conferences, Instructional Coaches, and Technology Troubleshooter meetings	Ongoing	Instructional Technology Leadership Team & Office of Technology Staff
Provide continual training for Office of Technology staff, Instructional Coaches and technology leaders around the Division	Ongoing	Instructional Technology Leadership Team
Provide regular representation at statewide and national technology conferences.	Ongoing	Instructional Technology Leadership Team
Collaborate with Instructional Coaches and other early adopters to pilot emerging technologies for possible division-wide implementation	Ongoing	Instructional Technology Leadership Team
Administer Division-wide surveys to determine if information about emerging technologies is distributed effectively	Annually in May	Instructional Technology Leadership Team

Goal 4: Ensure that school division has in place network security, filtering, and disaster recovery plans.

Target 1	Policies, procedures, and technologies are in place to ensure that computing resources are secure and recoverable.
Direct Benefit	Having policies, procedures, and technologies in place ensures computing resources are secure and recoverable, and protected from unauthorized use, misuse, and data loss.
Reality	Policies: - The Division maintains an Acceptable Use Policy as a measure to educate faculty, staff, and students on the responsible use of technology systems and resources. (see Target 2) - The Office of Technology is developing internal guidelines requiring staff to change system passwords every 90 days, while recommending changes every 30 days. Procedures: - Procedures are in place to ensure nightly backups are performed for all systems, servers, and critical data. - Procedures are in place to archive e-mail systems and student information system data on a monthly basis. Technologies: - Technologies are in place to perform nightly backups of all systems, servers, and critical data. - Technologies are in place to provide content filtering in accordance with the Children's Internet Protection Act. (see Target 2) - Technologies are in place to provide firewall protection for internal resources from unauthorized Internet access - Technologies are in place to provide hardware level authentication to the school division wireless network - Active Directory is used to maintain account information, and provide resource management and security for many systems

Gap/Action	• Network, system, and data backup documentation maintained by Office of Technology staff needs to be reviewed for accuracy and standardization • Data backup procedures need to be reviewed regularly to ensure standardization and consistency in all locations • Off-site backup rotations need to be established in locations not currently using them • Procedures are needed to provide Ongoing AUP education to students, faculty and staff • A more efficient software library catalog is needed to ensure media is readily accessible in the event of a system failure
Progress Indicators	1. Updated network, system, and data backup documentation 2. Updated data backup procedures, hardware, and software 3. Regularly scheduled data backups for each system in the central Data Centers and remote locations 4. Regularly scheduled data archives for necessary systems 5. Regularly scheduled off-site data backups at all locations 6. Plans are developed to regularly remind or educate staff and students about the AUP (see Target 2) 7. Development of an efficient software library catalog including media

Collaborative Strategies to Meet Goal 4, Target 1	Timeline	Responsibility
Review and standardize data backup procedures and documentation for all locations and central Data Centers	June 2009	Department of Accountability, Research, and Technology, Office of Technology Staff
Review and standardize data backup hardware and software for all locations and central Data Centers	June 2009	Department of Accountability, Research, and Technology, Office of Technology Staff
Review and standardize off-site data backup procedures for all locations and central Data Centers Blue/Green Team Offsite Backup Project	June 2009	Department of Accountability, Research, and Technology, Office of Technology Staff
Review and standardize data archives for necessary systems (4 month archive)	June 2009	Department of Accountability, Research, and Technology, Office of Technology Staff
Develop plans to educate staff and students about the AUP	Ongoing	Instructional Technology Leadership Team
Develop an efficient software library catalog including media (LMS replacement)	June 2009	Office of Technology Staff

Target 2	Maintain an up-to-date Acceptable Use Policy (AUP) and effectively use network filtering solutions.
Direct Benefit	An up-to-date Acceptable Use Policy provides guidelines for students, faculty, and staff regarding the responsible use of school division technology equipment. These guidelines are developed to help protect administrative and instructional resources, and outline specific rules about accessing inappropriate resources. Network filtering provides a technology-based solution for minimizing access to inappropriate resources that may be categorized as harmful to juveniles.

Reality	- Students, teachers, administrators, parents, and community members are involved in the periodic review of the AUP. - The AUP is updated and filed with the Department of Education every two years. - The AUP is available on the division website. - School division staff agrees to the terms of the AUP as part of School Board Policy IIBE when accepting employment. - Students and parents must sign the AUP in 3rd, 6th, and 9th grades, or when newly enrolled in other grades. Forms are kept on file with the respective schools and tagged in the Student Information System. The policy is also included in school handbooks. - Internet Safety education is being integrated into the curriculum. - A network filtering solution is currently used to block Internet sites categorized by the service provider as harmful to juveniles. The Division is in compliance with the Children's Internet Protection Act - An internal process is in place to review blocked sites which may have educational value.
Gap/Action	- A regular review of the AUP is needed to stay up-to-date with changing and emerging technologies - A regular process is needed to regularly remind or educate faculty and staff about the guidelines contained in the AUP - A regular process is needed to regularly remind or educate students about the guidelines contained in the AUP - Increased Internet Safety education is needed - The current network filtering solution used by the Division is very expensive
Progress Indicators	- A plan is implemented to regularly review the AUP and with revision approval through the Leadership Team, Technology Advisory Committee, County Attorney, and School Board, when necessary - A plan is implemented to regularly educate faculty and staff about AUP guidelines - A plan is implemented to regularly educate students about the AUP guidelines - Enhanced Internet Safety education is integrated into the curriculum - The cost effectiveness and educational impact of the network filtering solution is analyzed

Collaborative Strategies to Meet Goal 4, Target 2

Develop and implement a regular plan to review the AUP to keep up with changing and emerging technologies.

Fall 2009

Technology Advisory Committee with Department of Accountability, Research, and Technology

Develop and implement a regular plan to remind or educate faculty and staff about the AUP guidelines.

Fall 2009

Technology Advisory Committee with Department of Accountability, Research, and Technology

Develop and implement a regular plan to remind or educate students about the AUP guidelines.

Fall 2009

Technology Advisory Committee with Department of Accountability, Research, and Technology with School Counselors and school-based technology leadership

Develop and implement an enhanced Internet Safety program.	Fall 2009	Technology Advisory Committee with Department of Accountability, Research, and Technology with School Counselors and school-based technology leadership
Analyze the cost effectiveness and educational impact of the network filter solution and make modifications when necessary (Keep current Internet content filter)	Ongoing	Department of Accountability, Research, and Technology

Target 3	Have appropriate and effective network and data security policies and systems.
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Direct Benefit	Having appropriate and effective network and data security policies and systems protect confidential resources including student, employee, and financial information systems.
Reality	- The Acceptable Use Policy is communicated with students, teachers, administrators, parents, and community members when necessary - Personnel responsible for activities that relate to the use of the network are identified - Plans are reviewed for the overall coordination of the relationship between the Division network and other regional and state networks - Server-based, network-based, and application-based security systems are used to limit student access to specific types of information Security Policies: - Staff will be required to change passwords every 90 days, but encouraged to change them every 30 days - School division staff agrees to the terms of the AUP as part of School Board Policy IIBE when accepting employment. - Students and parents must sign the AUP in 3rd, 6th, and 9th grades, or when newly enrolled. Forms are kept on file with the respective schools and tagged within the Student Information System. The policy is also included in school handbooks. - Authorization forms are required to receive access to critical systems Systems: - A system is in place to provide division-wide content filtering in accordance with the Children's Internet Protection Act - A system is in place to provide firewall protection for internal resources from unauthorized Internet access - A system is in place to provide hardware level authentication to the school division wireless network - Active Directory is used to maintain account information, and provide resource management and security for many systems - Security is maintained on all networks, servers, and applications
Gap/Action	- A Standard Operating Procedures (SOP) manual needs to be developed to outline the network and data security policies - Standard operating procedures and security policies need to be regularly communicated with faculty and staff - Procedures need to be developed to audit network, server, and application security.

- Progress Indicators
1. A standard operating procedures manual outlining network and data security policies
 2. A plan to regularly communicate standard operating procedures and security policies with faculty and staff
 3. A plan to regularly audit network, server, and application security.

Collaborative Strategies to Meet Goal 4, Target 3		Timeline	Responsibility
Develop a standard operating procedures manual for network and security policies.		June 2009	Department of Accountability, Research, and Technology, Office of Technology Staff
Develop and implement a plan to regularly communicate standard operating procedures and security policies with faculty and staff.		June 2009	Department of Accountability, Research, and Technology, Office of Technology Staff
Develop and implement a plan to regularly audit network, server, and application security.		June 2009	Department of Accountability, Research, and Technology , Office of Technology Staff

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

Educational Applications

Educational applications relate to the instructional and administrative applications that will run over the infrastructure “highway” referenced in the Connectivity element.

Goals and Targets for Educational Applications

Goal 1: Improve teaching and learning through the appropriate use of network-accessible educational applications.

Target 1 Teaching and learning resources that effectively support the Virginia Standards of Learning (SOL) have been identified communicated and developed.

Goal 2: Promote and develop web-based applications, services and resources.

Target 1 All schools are participating successfully in the Virginia web-based SOL Technology Initiative.

Target 2 School divisions use web-based applications for state data collection, warehousing and reporting that use of a common set of data definitions, allowing standard communication and interpretation of student information.

Target 3 Every school has an efficient, automated library media center connected to the Internet and networked to appropriate learning areas.

Target 4 School divisions have strategies for providing community access to school-based technology and applications.

Goal 3: Offer digital learning opportunities at state and local levels.

Target 1 Web-based courses and staff development activities are provided.

Target 2 Schools are able to receive digital television broadcast signals and effectively utilize the enhanced capabilities.

Target 3 Evaluate options to provide staff and students anytime, anywhere access to educational and Web 2.0 resources within the school division.

Educational Applications: A Review of the Literature

(Source: Educational Technology Plan for Virginia 2003-2009)

The education and training sector holds the potential to become one of the largest sectors in the world economy. Global expenditures in education and training are reported by Merrill Lynch (as cited in Gunasekaran, McNeil & Shaul, 2002) to top \$2 trillion, with one-third of this expended in North America. A variety of educational applications—both networked and stand-alone—is available to practitioners for supporting teaching, learning, and school management.

With the growing market for educational applications, schools should consider interoperability as they make software purchases. To help schools increase their purchasing power by leveraging software investments and reducing redundant or proprietary data formats, the Schools Interoperability Framework (SIF) (<http://www.sifinfo.org>) is an industry-driven effort designed to promote greater interoperability between software for instruction and management. School software purchasing agents should consider the standard formats, naming conventions, and rules of interaction among software applications promoted by SIF to increase the return on their software investment.

While word processing applications and other productivity-based software are the instructional applications most commonly used in classrooms (McGraw, Blair & Ross, 1999; National Center for Education Statistics, 2000), digital content in the form of interactive media holds potential to create high-quality learning environments. These media enable greater user control of content and navigation, increased collaboration, and unique assessment opportunities that provide relevant and personalized feedback (Cairncross & Mannion, 2001). Hill and Hannafin (2001) suggest that access to easily manipulated resources encourage educators to move to a resource-based approach to learning. As these researchers note, digital resources are more easily stored, cataloged, and retrieved; they are more dynamic; and users often can extract meaningful data from them. Digital resources may also support different learning needs, and because resource based learning does not imply any particular form of learning or learning process, it is easily aligned with various epistemologies, teaching styles, and learning preferences.

Simulations, more than virtual environments, have found a modest user base. While neither has yet reached widespread use in providing and supporting instruction, early projects in the distribution of media-intensive content over broadband technologies hold great promise for creating compelling learning environments and activities that promote student learning. The Internet2 K-20 Initiative seeks to leverage the capacity of broadband technologies to facilitate teaching, learning, and access to educational opportunities. The initiative supports collaborative efforts with K-12 schools, colleges and universities, libraries, and museums (and their government and corporate partners). Current projects include Research Channel, which streams high-definition-television-quality, research-based content from leading research institutions; Neptune, a network of undersea laboratories that provides students with real-time remote access to vehicles, sensors, and data instruments on the ocean floor; and the Animation Research Lab and Digital Animation Library at the University of Washington, which brings together computer scientists, artists, musicians, architects, and writers to create new algorithms, systems, and tools for animation that will be accessible from a digital repository (Fox, 2001).

Projects such as these answer the call by the Web-Based Education Commission (2000) for compelling online content. The commission warns that without demand for such content, it may not be feasible for online content developers to stay in business. The result could be a market dominated by a few companies with limited choice and little innovation in design. Schools with technology-savvy faculties could generate a demand for compelling online content, but unless a critical mass of schools create this demand while the already-dwindling online content market still has enough players, it may come too late.

Educational Applications: Needs Assessment

CURRENT STATUS

Learning Resources

A variety of subscription research databases have been provided by the state and division; software titles that support the SOL and division instructional objectives have typically been provided by individual schools; recent changes to policy IIAA have allowed the division to define software and subscription resources as “learning resources,” in the same way that textbooks are defined, and to begin to acquire a division-wide suite of products to support curricula. Approximately \$150,000 was spent in FY 2006-07 on these resources.

Web-based Applications

Web-based applications include the online delivery of professional development, curriculum, and the administrative applications utilized by the Division for data collection, as well as participation in the state’s web-based SOL Technology Initiative.

- Currently there are few online courses offered to students.
- All state data reporting is done electronically. We are evaluating web-based Student Information Systems.
- We fully participate in the web-based SOL Technology Initiative. All middle and high schools are certified to for online SOL testing.

DESIRED STATE

To fully support the individual learning needs of students and the professional development needs of staff, it is important that the Division continue to invest in the resources that support the curricula and the professional learning needs of the instructional and support staff.

Learning Resources

- Full deployment of a basic suite of software and subscriptions to support the general educational program of all schools
- Evaluation, adoption, purchase and deployment of software to support specific subject area curricula, including art and music
- Evaluation, adoption, purchase and deployment of software to support assistive technology needs of students
- Evaluation, adoption, purchase and subscription to research materials to support all curricula
- Deployment of professional development related to all learning resources

Web-based Applications

- Evaluation, purchase, and deployment of online materials to support division professional development programs, including FQL, NETS*T certification; technical certifications; etc.
- Evaluation, purchase/subscription of online curriculum for students.
- Evaluation, purchase, deployment of Student Information System and other web-based administrative/Instructional management systems (SchoolNet).

Media Center Modernization

- Each media center needs to be capable of receiving digital broadcasts.
- Each media center needs to be able to distribute media to any learning space.

Educational Applications: Implementation Plan

CENTRAL ISSUE

Not all schools in the Albemarle County Public School system have the same level of educational application support (administrative and instructional). The ACPS Software Procurement Plan is a system that provides for the procurement, installation, management, support, and thoughtful use of the computer network and electronic resources in ACPS so that all stakeholders have mission-appropriate input, with the ultimate goal of student achievement. Through this plan, ACPS provides the same level of basic educational application support (administrative and instructional) at the divisional and individual school levels. Elementary, middle and high school matrices of software are maintained as well as a School Board Approved-for-Purchase matrix that provides a list of vetted software applications and on-line databases. The continued review of the use of these applications in addition to the review of new applications as they become available is a challenge managed by the ACPS Software Review process.

RATIONALE

All schools need access to the same level of informational, administrative, and instructional resources, and educational applications to support the Virginia Standards of Learning, improve the delivery of essential services, and increase student learning and achievement.

Goals and Targets for Educational Applications

Goal 1: Improve teaching and learning through the appropriate use of network-accessible educational applications.

Target 1	Teaching and learning resources that effectively support the Virginia Standards of Learning (SOL) have been identified, communicated, and developed.	
Direct Benefit	Identifying, communicating, and developing resources that effectively support the Virginia Standards of Learning (SOL) provides teachers and administrators ready access to SOL materials leading to improved teaching and learning environments.	
Reality	- Professional Learning Communities are used across the Division to share best practices and information for using technology-based resources to effectively support the Virginia SOL. - The Division's Framework for Quality Learning and Instructional Management System (SchoolNet) are the official mechanisms for maintaining an electronic curriculum guide that ties instructional media materials to the SOL and local curriculum. - TSIP certification is used to ensure certified staff has required technology skills to effectively support the Virginia SOL. - Classroom observations are used to assess if teaching and learning resources have been identified and utilized. - A full range of digital content is provided to supplement printed textbook and other analog learning resources.	
Gap/Action	- Additional staff development and training opportunities are needed to provide the identification, evaluation, SOL correlation, and selection processes for technology-based materials, including those for remediation. - Technology-use surveys are needed to assess if teaching and learning resources have been identified and utilized. - Additional e-learning courses are needed to provide online access to the core curriculum. - Division-wide understanding of the Framework for Quality Learning is still in the development stage. - The Division instructional management system (SchoolNet) is still in the development stage of becoming a comprehensive curriculum repository aligned with the Virginia SOL standards.	
Progress Indicators	- The number of staff development and training opportunities offered to provide the identification, evaluation, SOL correlation, and selection processes for technology-based materials - The number of technology-use surveys to assess if teaching and learning resources have been identified and utilized - The number of e-learning courses offered to provide online access to the core curriculum - The number of staff development opportunities offered to increase comprehension of the Framework for Quality Learning - Continued growth of the curriculum materials contained in the instructional management system	

Collaborative Strategies to Meet Goal 1, Target 1	Timeline	Responsibility
Provide additional staff development and training opportunities to provide the identification, evaluation, SOL correlation, and selection processes for technology-based materials, including those for remediation	Ongoing	Assistant Director for Information Management and Instructional Technology with Lead Coaches, Technology Lead Teachers

Continue development of the Division Intranet or other system to host an online learning resources site	August 2009	Department of Accountability, Research, and Technology
Administer technology-use surveys to assess if teaching and learning resources have been identified and utilized	Annually in May	Department of Accountability, Research, and Technology, Division's Technology Advisory Committee
Develop and adopt additional e-learning courses to provide online access to the core curriculum (Apex, Blackboard, etc.)	Ongoing	Classroom teachers with support from Assistant Director for Information Management and Instructional Technology, Lead Coaches, Technology Lead Teachers; Department of Accountability, Research, and Technology
Provide additional staff development opportunities for the Framework for Quality Learning	Ongoing	Instructional Coaches with support from Lead Coaches, principals
Continue entry of vetted curriculum materials into the instructional management system	Ongoing	Office of Instructional and Department of Accountability, Research, and Technology

Goal 2: Promote and develop web-based applications, services and resources.

Target 1	All schools are participating successfully in the Virginia web-based SOL Technology Initiative.
Direct Benefit	Participating in the Virginia web-based SOL Technology Initiative provides the following advantages as indicated by DOE and other anecdotal sources: • Less administrative time required to record student demographic data • Reduced handling of paper documents (i.e. test booklets, answer documents, etc.) • Web-based, point-and-click test scheduling capabilities • Improved test monitoring capabilities • Web-based reporting of student test results • Reduced turnaround time to receive student test scores resulting in potential increases in instructional time and remediation • Immediate access to expedited retakes • Preference by students to take tests electronically
Reality	• All schools meet the technical requirements for participating in the Virginia web-based SOL Technology Initiative • Web-based SOL testing has been successfully administered for (need updated numbers)Computer-based and web-based instructional materials committees conduct regular needs assessments and identify materials to correlate with local instructional needs and the SOL • The Division's Instructional Management System (SchoolNet) is the common system under development for containing SOL-related materials found to be effective for instruction and remediation

Gap/Action	- The web-based SOL Technology Initiative increased the work load of the technical support staff - The Division's Instructional Management System (SchoolNet) is still in the early stages of becoming a comprehensive curriculum repository aligned with the Virginia SOL standards.
Progress Indicators	- Clearly defined roles for web-based SOL testing responsibilities leading to improved efficiency - Continued growth of the curriculum materials contained in the instructional management system

Collaborative Strategies to Meet Goal 2, Target 1

Timeline

Responsibility

Define and document roles for web-based SOL testing responsibilities

June 2009

Department of Accountability, Research, and Technology

Continue entry of vetted curriculum materials into the instructional management system

Ongoing

Office of Instructional and Department of Accountability, Research, and Technology

Target 2

The Division uses web-based applications for state data collection, warehousing and reporting that use of a common set of data definitions, allowing standard communication and interpretation of student information.

Direct Benefit

Efficient access to student information leads to data-driven decision making effecting teaching and learning.

Reality

- The Division currently uses a "district integrated" student information system that requires a common set of data definitions.
- The Division is in the second year of a multi-year implementation of a web-based Instructional Management System (SchoolNet) which provides access to student information for teachers and administrators. This system is fed directly from the student information system using common data elements.
- The Division has implemented a zone integration server and SIF agent for vertical integration with the State.
- The Division has developed the standards-based Framework for Quality Learning model that provides a common guide for communication related to analysis of assessment data.
- All administrators and instructional staff are offered appropriate training to maximize the utilization and analysis of web-based data and information available from the instructional management and student information systems

Gap/Action

- Student data required for State reporting is reviewed against a common set of data definitions. Data which is not included in State reporting requires additional review and standardization.
- No horizontal SIF agents have been deployed to connect the primary student information system with other student databases.
- Review of assessment literacy is ongoing in Professional Learning Communities, but implementation of the Framework for Quality Learning is in early stages.

Progress Indicators

- Confirmation from DOE that Division data definitions are aligned with state reporting requirements
- The number of horizontal SIF agents deployed
- The number of assessment literacy professional development offerings

Collaborative Strategies to Meet Goal 2, Target 2	Timeline	Responsibility
Deploy a web-based Student Information System using standard data definitions	August 2010	Department of Accountability, Research, and Technology
Communicate with DOE to ensure data definitions are aligned with state reporting requirements	June 2009	Department of Accountability, Research, and Technology
Implement horizontal SIF agents to provide connectivity between SIS and other student databases	Ongoing	Department of Accountability, Research, and Technology
Continue to use the Division's Framework for Quality Learning as a guide to shape assessment literacy and improve student learning	Ongoing	Office of Instruction Staff

Target 3	Every school has an efficient, automated library media center connected to the Internet and networked to appropriate learning areas.
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Direct Benefit	An efficient, automated library media center connected to the Internet, and networked to appropriate areas, provides access to carefully selected media and resources.
Reality	• Every library media center within the Division uses an efficient, automated library management system • Every library media center within the Division is connected to the local area network which provides access to the Internet and other network-based applications and media-related resources • Every instructional area within each school can access the automated card catalog, electronic reference system, and other media-related resources • The Division currently uses a 3-year replacement cycle to replace library media center equipment • Each school has access to United Streaming to engage students with rich video and online learning resources
Gap/Action	The horizontal SIF agent has not been deployed to connect the library management system with the primary student information system.
Progress Indicators	1. Review of existing library management system to ensure instructional and administrative needs are being met 2. Deployment of the horizontal SIF agent to connect the library management system with the primary student information system

Collaborative Strategies to Meet Goal 2, Target 3	Timeline	Responsibility
Review existing library management system to determine if instructional and administrative needs are being met	Summer 2009	Library/Media Specialists, Central Media Center, Department of Accountability, Research, and Technology
Implement replacement library management system, if necessary	Summer 2009	Department of Accountability, Research, and Technology
Install horizontal SIF agent to connect the library management system with the primary student information system	Summer 2009	Department of Accountability, Research, and Technology

Target 4	The school division has a strategy for providing community access to school-based technology and applications.
Direct Benefit	Providing community access to school-based technology and applications enhances parent and community involvement in teaching and learning. It also increases communication between the school division and community, and enables the community to be better informed about technology used by students.
Reality	• Community access to school-based computer labs is available upon request and authorization • Community access to web-based services is available via Division, schools, and teacher websites • Several web-based subscription services are available to students and parents at home • Technology is used to provide students and parents with individual education plans, remedial resources, continuous feedback on how well students are meeting their learning goals, and opportunities for virtual student performance assessments.
Gap/Action	• Online staff development courses and necessary and desirable seminars/workshops need to be developed for school personnel, parents, and the community • Job-related technology skills training and computer literacy training opportunities using the Division's technology facilities need to be developed for the community • A support model must be developed for the community
Progress Indicators	1. Online staff development courses and seminars/workshops are offered for school personnel, parents, and the community 2. Job-related technology skills training and computer literacy training opportunities are offered to the community using Division's technology facilities

Collaborative Strategies to Meet Goal 2, Target 4	Timeline	Responsibility
Develop online staff development courses and seminars/workshops for school personnel, parents, and the community	Ongoing	Director of Professional Development with support from Assistant Director for Information Management and Instructional Technology
Develop job-related technology skills training and computer literacy training opportunities for the community using Division's technology facilities	Ongoing	Office of Community Engagement with support from Assistant Director for Information Management and Instructional Technology and Director of Professional Development

Goal 3: Offer digital learning opportunities at the local level.

Target 1	Web-based courses and staff development activities are provided.
Direct Benefit	Web-based systems offer equitable access to courseware and staff development opportunities.

Reality	• Teleconferencing and distance/distributed learning capabilities are available for all schools • Blackboard is available to all faculty and staff for providing online courses and staff development activities
Gap/Action	• The Division's teleconferencing and distance learning capabilities are under utilized • The Division's Blackboard courseware system is underutilized and may not be cost effective • Additional training opportunities need to be offered
Progress Indicators	1. The number of distance learning courses offered 2. The number of online courses offered through Blackboard 3. The number of Blackboard training opportunities offered

Collaborative Strategies to Meet Goal 3, Target 1	Timeline	Responsibility
Advertise and promote the Division's teleconferencing and distance learning capabilities	Ongoing	Department of Accountability, Research and Technology with the Communications Coordinator
Advertise and promote the Division's online courseware system	Ongoing	Department of Accountability, Research and Technology with the Communications Coordinator
Provide additional Blackboard training opportunities for staff	Ongoing	Technology Lead Teachers, Instructional Coaches
Research potential replacement systems for Blackboard, if necessary, and present recommendations	June 2009	Department of Accountability, Research and Technology

Target 2	Schools are able to receive digital TV broadcast signals and effectively utilize the enhanced capabilities.
Direct Benefit	Digital cable allows schools to receive a wide variety of programming formats and resources. Digital technology also adds two-way communication functionality that allows video-on-demand services.
Reality	• Head-end systems currently installed in Division schools will pass the digital signal • The change in 2009 will have minimal impact on existing services
Gap/Action	• Some schools may need broadcast video wiring upgrades • A digital-to-analog tuner may need to be installed at the head-end system in each building, or in each classroom depending on the level of service required • A modulator may need to be installed to ensure new TV and DVD/VCR units are compatible with existing systems • Ongoing training is needed to operate school-based studios
Progress Indicators	1. Plans are developed to address broadcast wiring needs 2. Digital-to-analog tuners are installed where needed 3. Modulators are installed where needed 4. The number of training opportunities offered

Collaborative Strategies to Meet Goal 3, Target 2	Timeline	Responsibility
Assess broadcast video wiring at all schools to ensure existing infrastructure meets the future bandwidth needs	June 2009	Department of Accountability, Research, and Technology
Identify a cost effective digital-to-analog tuner to be installed at the head-end systems where necessary	June 2009	Department of Accountability, Research, and Technology
Identify a cost effective digital-to-analog modulator for devices that do not have an analog tuner	June 2009	Department of Accountability, Research, and Technology
Research expanded features and equipment requirements for utilizing digital services including video-on-demand and other interactive services	June 2009	Department of Accountability, Research, and Technology
Provide training for school-based studios	Ongoing	Department of Accountability, Research, and Technology

Target 3	Evaluate options to provide staff and students anytime, anywhere access to educational and Web 2.0 resources within the school division.
Direct Benefit	Providing anytime, anywhere access to educational resources engages students in learning, teachers in teaching, and enables both to be more efficient and productive. Utilizing Web 2.0 resources allows them to be contributors of information in addition to consumers of information.
Reality	• Staff only has anytime, anywhere access to e-mail, web services, and the instructional management system • Students only have anytime, anywhere access to a few subscription services • Blogs, Wikis, social networking, and other Web 2.0 application use is not widespread
Gap/Action	• Students do not have division-provided e-mail accounts • Students cannot access not access their own school-based resources from home with the exception of Blackboard (i.e. home directory, portfolio) • Staff and students do not have anytime, anywhere access to the library management system • A different technical support structure would probably be needed to accommodate anytime, anywhere access for staff and students
Progress Indicators	1. Evaluation report for anytime, anywhere access to specific resources for staff 2. Evaluation report for anytime, anywhere access to specific resources for students 3. Evaluation report for student-safe Web 2.0 applications 4. Recommendations of required support structure

Collaborative Strategies to Meet Goal 3, Target 3	Timeline	Responsibility
Identify, evaluate, and possibly implement secure, cost-effective options to provide anytime, anywhere access to specific division resources for staff	Ongoing	Department of Accountability, Research, and Technology
Identify, evaluate, and possibly implement secure, cost-effective options to provide anytime, anywhere access to specific division resources for students	Ongoing	Department of Accountability, Research, and Technology

Identify, evaluate, and possibly implement options to provide access to student-safe Blogs, Wikis, social networking, and other emerging Web 2.0 applications	Ongoing	Department of Accountability, Research, and Technology
Determine support structure needed to support anytime, anywhere access and present recommendations	June 2009	Department of Accountability, Research, and Technology

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

Accountability

Accountability addresses the broad assessment of information technology and its specific value to teaching and learning environments, data management, and decision support functions related to K-12 schools.

Goals and Targets for Accountability

Goal 1: Assess the value that information technology (IT) adds to teaching and learning environments.

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| <i>Target 1</i> | Identify elements of technology integration that benefit the teaching and learning environment. |
| <i>Target 2</i> | Readiness to integrate technology into teaching and learning has been assessed for each school. |
| <i>Target 3</i> | Instructional technology integration has been assessed in schools and classrooms. |
| <i>Target 4</i> | Technology-rich environments and effective technology-based instructional strategies support student learning. |

Goal 2: Provide appropriate decision support capabilities for all stakeholders.

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| <i>Target 1</i> | Information systems provide comprehensive information about student learning progress. |
| <i>Target 2</i> | Information systems interface to provide staff members the ability to use appropriate and effective data to make decisions. |

Goal 3: Assess information technology (IT) literacy.

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|-----------------|---|
| <i>Target 1</i> | All students are technology literate. |
| <i>Target 2</i> | All instructional personnel are technology literate. |
| <i>Target 3</i> | All paraprofessionals and support staff are technology literate. |
| <i>Target 4</i> | Students meet expectations for technology utilization pertaining to their subject and grade level as described by school division technology plans. |

Goal 4: Ensure that local technology plans are consistent with the state technology plan.

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| <i>Target 1</i> | School divisions will have technology plans that are consistent with the components of the state technology plan. All schools will have technology plans that are consistent with the components of their division technology plan. |
| <i>Target 2</i> | All schools and school divisions will evaluate annually the progress and effectiveness of their technology plans. |

Accountability: A Review of the Literature

(Source: Educational Technology Plan for Virginia 2003-2009)

The No Child Left Behind Act of 2001 requires states to develop high standards for learning; to align curriculum, instruction, professional development, and resources so students have the opportunity to achieve them, and to develop high-quality academic assessments that measure student progress toward achieving the standards. It also places new emphasis on accountability, holding schools, districts, and states responsible for improving student performance.

In addition to enhancing teaching and learning, technology offers support for activities commonly associated with school accountability and management, such as student assessment, teacher and program evaluation, and data-based decision making to support school improvement efforts. Given the pervasiveness of technology in society, it would be difficult for schools to justify not integrating technology into their efforts. It is important, however, for practitioners to justify their choices of technologies and strategies for integration and evaluation, and to measure the outcomes from those decisions.

Research continues to confirm the value of technology to improve teaching and learning (Sivin -Kachala & Biaco, 1999); however, assessing the impact of technology on learning can be difficult. Because technology is so pervasive, isolating its effects in an educational system can be a daunting task that requires sophisticated statistical analyses.

Hawkes and Cambre (2001) relate the difficulties of determining the effects of educational technology. They describe such common impact indicators as measures of stakeholder involvement, technology competency, equity, student and teacher roles, climate of learning, teacher collaboration, and school-agency collaboration. Other indicators often described include improved attendance, increased excitement and motivation, engagement in problem solving, improved self-esteem, style of student presentations, and increased student acceptance of responsibility for their own learning (Hawkes and Cambre, 2001; Sivin -Kachala & Biaco, 1999). Although standardized assessments are also reported as impact indicators, these researchers emphasize previous findings (Dede, 1998) that they may be inappropriate because they do not measure the full impact of technology.

Other areas significantly impacted by technology use are presented by Whitehead (2000), who names quantity of student writing, quality of student writing, cooperative learning, integrated learning, application of learning styles, cross-age tutoring, teacher communication, parent-school communication, school-community relations, and students as global learners. Note that this list does not include standardized measures of achievement, yet student performance on such measures is on the minds of many administrators and policymakers. In their study of technology's impact on student achievement, Sivin-Kachala and Biaco (1999) found that its effectiveness "depends on a match between the goals of instruction, characteristics of the learners, the design of the software and technology integration implementation decisions made by educators" (p. 2).

Most states have instituted accountability systems to measure progress in standards-based reforms. The preferred mode for measuring student and school performance is testing (Clarke, Madaus, Pedulla, & Shore, 2000). The recent reauthorization of the Elementary and Secondary Education Act significantly increases the amount of standardized testing that will occur in the nation's schools (No Child Left Behind Act, 2001). The Council for Chief State School Officers (as cited in Russell & Haney, 2000) reported in 1998 that 48 states use statewide tests to assess student performance. These tests are used to determine whether to promote students and grant degrees, and to identify, sanction, or reward low- and high-performing schools. Policymakers tend to view large-scale assessments as a major determinant in what happens in schools and classrooms (Pellegrino, Chudowsky & Glaser, 2001; Tapper, 1997) and set as their goal the attainment of the highest possible scores from their constituents. Teachers, on the other hand, seek different types of information from assessments and are more concerned with determining the levels of students' understanding to help them achieve desired learning outcomes (Tapper, 1997).

Large-scale assessments serve the purpose of informing administrators, policymakers, and the public on a limited set of indicators. They provide a cost-efficient sampling of a system's progress toward achieving curriculum

standards. Several states have begun to explore the use of technology in assessment, particularly the potential of online testing (Hambrick, 2002).

The continuum of teachers that pass through as they learn to integrate technology in their classrooms (Dwyer, Ringstaff & Sandholtz, 1991) seems to be mirrored by other stakeholder groups as they implement online testing (Hambrick, 2002). Developments in four early-adopter states—Georgia, Oregon, South Dakota, and Virginia—indicate that these early ventures typically replicate familiar multiple-choice, paper-and-pencil tests.

Replication of traditional activities is a hallmark of early stages of technology integration. Although some technology-based solutions are available for online administration and scoring of writing assessments, most states have yet to explore the potential of technology for creating unique learning and assessment environments.

The National Online Assessment Conference (AEL, 2000b) identified issues states may face when deploying large-scale testing. Four major issues are access, equity, infrastructure, and security.

Access. While many schools have reduced their student-to-computer ratio to approach 5:1, this ratio is inadequate for large-scale testing, which would optimally require a 1:1 ratio. Even schools with a 1:1 ratio could have many computers that may not meet the performance requirements of online assessment instruction and remediation.

Equity. Tests must be designed to measure curriculum standards, but variations in presentation may affect the validity and reliability of results. Factors such as display size and resolution impact how much information students see and may create disparate testing environments. Differences in computer platforms and processor speeds also impact the rate and quantity of testing information that can be displayed.

Infrastructure. While many schools are connected to the Internet, there are no standards governing how many computers are connected and what their access speeds may be. If entire schools or districts access a network at the same time, connection speed will slow, and may erode test reliability.

Security. Test items and student's scores must be kept secure, and schools must be able consistently to identify students who are taking the tests and track students who leave, enter, or re-enter the system.

Researchers argue that, in addition to creating technical barriers, the practice of replicating existing measures will have little impact on classroom practice because existing large-scale assessment formats do not provide the depth of analysis afforded by classroom assessments, which focus more on curriculum and instruction. Most current large-scale tests do not provide sufficient information to identify why students do not perform well or to modify classroom instruction to improve student achievement (Pellegrino, Chudowsky & Glaser, 2001). These tests are not structured to identify differences in students' levels of understanding, such as the organization of knowledge, problem representations, strategy use, metacognitive skills, and contributions to collaborative problem solving. Black and Wiliam (1998) corroborate that these tests have limited application in instruction because they provide overall summaries of achievement rather than helpful diagnoses.

Classroom-based formative assessments have been recognized as fundamental for implementing standards based instruction by groups such as the National Research Council and the National Council of Teachers of Mathematics (Pellegrino, Baxter & Glaser, 1999). Formative assessments help teachers determine the effectiveness of the instruction as well as the level of student understanding, and can help teachers select the most appropriate teaching strategies to increase student's performance. Students, too, benefit from formative assessments by learning which skills and knowledge they have or have not mastered. Students benefit most when they receive feedback about the quality of their work and suggestions for improvement—input readily available from formative classroom based assessments (Pellegrino, Chudowsky & Glaser, 2001).

In a study of classroom practice, McMillan and Nash (2000) found that teachers often use a variety of assessments and criteria to fairly assess students. Teachers use multiple measures and methods individualized to their students and based on their own experiences as well as the nature of the learning objectives. These researchers suggest that the influence of teachers' values supports the rationale for using assessments and grading practices that are most consistent with their own philosophies of teaching and learning. Technology-based tools may be vehicles for generating classroom-based formative assessments and for providing summative results necessary for decisions by administrators and policymakers.

Some technology-based assessment approaches include the use of electronic portfolios, multimedia presentations, and simulations, although few of these are widely used. Electronic portfolios can document student and teacher activities and progress (Penta, 1998; Wiedmer, 1998). Simulations can provide open-ended learning and assessment environments (Barron et al. 1995) that draw on the social nature of learning. These approaches tend to require particular assessment supports, such as the rubrics for assessing multimedia presentations that were developed by the Challenge 2000 Multimedia Project (Penuel, Means & Simkins, 2000).

Most promising are the efforts of groups such as the National Center for Research on Evaluation, Standards, and Student Testing (CRESST) (Chung & Baker, 1997) and others (Daniels & Johnson-Ferguson, 2001; Fickes, 1998)—that are developing technology-supported processes for generating, storing, and analyzing school based data to provide both formative information for classroom practice and summative results for determining school performance. For example, CRESST's Quality School Portfolio (<http://qsp.cse.ucla.edu>) is described as both a product and a process. It includes a database program to help schools gather data from a variety of sources, then disaggregate and use the data for several types of reports. The system also includes a resource kit of research based tools to help schools gather data on factors such as safety and security, parental involvement, professional development programs, and technology and innovation efforts. This system presents ways technology can support data-based decision making and help schools sort and analyze a vast quantity of data to impact student achievement.

Accountability: Needs Assessment

CURRENT STATUS

The No Child Left Behind Act of 2001 places a new emphasis on accountability for schools and districts. Technology supports this emphasis by enhancing teaching and learning, providing a more robust record-keeping environment, and making it possible for instructional personnel to utilize data to inform their practice to enhance student achievement.

Assessing Effectiveness

Use of TSIP certification and the TPA to assess teacher proficiency; teachers rely on projects and incidental observations to monitor skill development among students.

SOL, SAT, AP Exams

No correlations exist between this data and student use of technology in the division. The division will increase the data captured in the area of student use of technology as a means of delivering assessments.

Electronic Portfolios

Electronic portfolios are developed in some grade levels and schools and capture snapshots of student technology use.

Survey Data

Taking a Good Look at Technology data is several years old.

DESIRED STATE

For technology to be an effective tool for teaching and learning, many resources need to be in place. Administrators, teachers, and other staff need access to a rich array of professional development devoted to the instructional and data management tools that they are expected to utilize in the performance of their jobs. Students need access to curricula that develop technology and information literacy skills aligned to the needs of 21st century learners. The table below summarizes some of the indicators of the desired state for those resources.

Assessing Effectiveness

TSIP and other certification measures indicate a high degree of technical proficiency of staff and the TPA and FQL documents indicate a high degree of technology integration into curricula. Information systems for program support are in place.

SOL, SAT, AP Exams

State, division, and/or university partners work to establish correlation studies that link student achievement to technology use/literacy.

Electronic Portfolios

Electronic portfolios fully implement the middle school student portfolio as a technology literacy assessment program to meet the No Child Left Behind Act Requirements. Could this also connect to the new career plan students are going to be expected to create?

Survey Data

Obtain and administer surveys related to the elements of this technology plan, including issues related to equity, readiness, and security on a regular basis.

Accountability: Implementation Plan

CENTRAL ISSUE

The value of technology must be better understood as it relates to improving teaching and learning practices and to its role in the effective and efficient management of information, particularly decision-support functions. ACPS is tasked with two assessment challenges:

1. How do we measure the use of technology to affect student achievement in the core curriculum areas?
2. How do we ensure that our graduates are technologically literate?

Embedded in the first task is the challenge of managing K-12 student data so as to support instructional decisions made by teachers. Embedded in the second is the assessment of instructional personnel and support staff.

RATIONALE

Accountability regarding the use of educational technologies is being demanded by all funding and governing sources. Information about the impact of educational technologies on teaching methods, student achievement, and the learning environment is needed to inform procurement and professional development. The cost of providing educational technologies in sufficient quantities (critical mass, etc.) demands precise reporting on the overall cost benefit. ACPS and its students need to be evaluating learning as both formative and summative assessments.

Goals and Targets for Educational Applications

Goal 1: Assess the value that information technology (IT) adds to teaching and learning environments.

Target 1	Identify elements of technology integration that benefit the teaching and learning environment.
Direct Benefit	Research review indicates that student achievement increases when students participate in technology-facilitated activities that involve peer collaboration, higher order thinking, and problem solving skills. Having structures in place that measure that achievement is critical. For all members of the school division: 1. learning tool 2. data processing tool 3. enabling force For Students: 1. motivating element 2. information processing tool 3. information gathering tool 4. assessment (both alternative and traditional avenues)

For Teachers:

1. communication device (with the local community, professional community, global community, students, parents, and administrators.)
2. assessment tool
3. curriculum development device
4. presentation and processing tools
5. productivity tool

Reality	The state of Virginia Standards of Learning contains technology standards but does not have a state assessment to determine proficiency. Albemarle County has a common body of knowledge about the value and elements of technology integration but lacks consistency in delivery and an assessment tool to measure effectiveness.
Gap/Action	ACPS does not have a standard definition of elements of technology integration mapped to our Framework for Quality Learning curriculum model.
Progress Indicators	1. Standard definition of technology integration is developed. 2. Training model is developed, and integrated into the TPA, to assess the presence of technology integration in classrooms. 3. Develop assessments of students' technological awareness and capacity for its use, especially as it relates to critical thinking and higher levels of thinking.

Collaborative Strategies to Meet Goal 1, Target 1	Timeline	Responsibility
Create and communicate a standard definition of technology integration.	2009-2010	Assistant Director for Information Management and Instructional Technology, Technology Lead Teachers, Lead Coaches, Instructional Coaches.
Provide training for assessing the presence of the elements of technology integration that benefit the teaching and learning environment.	2009-2010	Department of Accountability, Research, and Technology
Develop assessments that incorporate elements of technology that will assess how well students select appropriate technologies to facilitate their work and their capacity to use those technologies efficiently and effectively.	2009-2010	Office of Instruction, Department of Accountability, Research, and Technology

Target 2	Readiness to integrate technology into teaching and learning has been assessed for each school.
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Direct Benefit	To Students: Learning activities will incorporate more opportunities to use, apply and develop real world technology applications. To Teachers: Knowledge about readiness leads to targeted professional development and support to improve technology integration. To Principals: Administrators would be better able to set policy and drive curriculum based on data about what technology is available to the students as opposed to anecdotal evidence. To County Administrators: Decision about purchasing and hiring would be driven by data indicating the areas of need in the county.
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Reality	TSIP certification provides a basic assessment of teacher readiness to integrate technology.
Gap/Action	The TPA based survey needs to be expanded to include more specific technology integration components.
Progress Indicators	1. Completion of surveys establishes baseline data. 2. Any changes or re-affirmations of policy instruction, or curriculum would indicate that the data was useful.

Collaborative Strategies to Meet Goal 1, Target 2	Timeline	Responsibility
Develop and deliver technology readiness surveys using the TPA model.	2008-09	Department of Accountability, Research, and Technology
Using the results of surveys, school-based professional development will be targeted to the needs of staff regarding technology integration.	2009-2010	Principals, Instructional Coaches, Technology Lead Teachers

Target 3	Instructional technology integration has been assessed in schools and classrooms.
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Direct Benefit	Division: 1. Better able to provide equipment, personnel, and training to weak areas. 2. Better able to leverage our strengths as a division, if they are known. Instructional: 1. Technology integration assessment shared across the division using the connectivity of PLC, curriculum, instruction, and assessment creates a solid base of knowledge, as opposed to pockets of strength. 2. Technology integration assessment informs decisions about instructional practices to improve student learning. 3. Eliminating the achievement gap, through universal access and shared resources, at-risk students will benefit. (studies found at the following sites support this statement: www.thejournal.com/articles/15249; www.nae.edu/nae/techlithome.nsf; http://cnets.iste.org/Students/s_profiles.html)
Reality	There is no current assessment data on technology integration.
Gap/Action	An assessment tool needs to be developed to identify and measure technology integration
Progress Indicators	1. Technology integration assessment tool is developed. 2. Results disseminated. 3. Professional development activities are developed to target integration based on results of the assessment.

Collaborative Strategies to Meet Goal 1, Target 3	Timeline	Responsibility
Identify and customize a system for assessing instructional practices on the integration of instructional technology.	2009-2010	Department of Accountability, Research, and Technology

Utilize learning walk data to indicate frequency of instructional practices integrating instructional technology.	2009-2010	Principals with support from Assistant Director for Information Management and Instructional Technology
Professional development activities are designed and delivered based on assessment results.	2009-2010	Director of Professional Development and Media Services with support from Assistant Director for Information Management and Instructional Technology
Administrators incorporate technology integration goal into required “school-based” SMART goals on the TPA document.	August 2009; Ongoing	Principals

Target 4	Technology-rich environments and effective technology-based instructional strategies support student learning.
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Direct Benefit	Students: 1. Prepared to be members of the global community. 2. Prepared to work in the global economy. 3. Competitive in a world-class educational system. 4. Eliminate the achievement gap.
Reality	Technology assessment has not been completed; ergo we have no recent data. However, we have: 1. Infrastructure 2. Anecdotal evidence of technology-rich environments 3. Some indicators of increased test scores and participation in higher level course work both in the division and after graduation.
Gap/Action	No system of data collection has been developed regarding student achievement in relationship to technology integration
Progress Indicators	1. NET*S standards are met. 2. SOL, SAT, AP exam scores rise

Collaborative Strategies to Meet Goal 1, Target 4	Timeline	Responsibility
Incorporate into the division assessment model specific tools to assess NET*S standards.	2009-2010	Department of Accountability, Research, and Technology
Conduct pilot studies to assess the relationship between students' SOL test scores and technology-rich school environments.	2009-2010	Department of Accountability, Research, and Technology

Goal 2: Provide appropriate decision support capabilities for all stakeholders.

Target 1	Information systems provide comprehensive information about student learning progress.
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Direct Benefit	Appropriate decisions can be made efficiently in order to improve student learning process.
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Reality	Information is not yet organized so that it can be easily retrieved.
Gap/Action	The division is in the process of developing an organized Internet-based data warehouse to be used by school personnel.
Progress Indicators	1. As teachers become familiar with School Net, they are able to pull multiple data sources into one location. 2. Teachers use the data to inform instruction. 3. PLC conversations are enhanced through focused discussion about specific individual student achievement, trends within a class or across the division.

Collaborative Strategies to Meet Goal 2, Target 1

Timeline

Responsibility

Using School Net develop a set of common preformatted reports that indicate student performance on multiple measures.

Ongoing

Department of Accountability, Research, and Technology

Continue training on assessment literacy and data driven decision making at the PLC level

2009-2010

School based PLC teams & Coordinator of Research and Program Development

Target 2

Information systems interface to provide staff members the ability to use appropriate and effective data to make decisions.

Direct Benefit

Teachers and administrative staff can access data to drive instruction.

Reality

Data is organized differently at each school and comprehensive data is difficult to access.

Gap/Action

The division is in the process of developing an organized Internet-based data warehouse to be used by school personnel.

Progress Indicators

1. PLC discussions include data taken from SchoolNet, for the purpose of instructional decision making.
2. Data is available for SBIT meetings and instructional interventions.
3. Preformatted reports provide direct and useful information about student instructional needs.

Collaborative Strategies to Meet Goal 2, Target 2

Timeline

Responsibility

Develop division level benchmarks mapped to the state standards that can be loaded into our student information system for tracking individual student progress.

August 2009

Office of Instruction with support from the Department of Accountability, Research, and Technology

Work with the planning team on the development of reports designed to track individual and group data.

Ongoing

Department of Accountability, Research, and Technology

Decide upon the assessments (formal/informal, performance) that will be used in order to provide comprehensive data on student achievement.

August 2009

Department of Accountability, Research, and Technology with support from the Office of Instruction

Comprehensive student data is organized through SchoolNet in order to be more accessible to teachers/administrative staff.	Ongoing	Department of Accountability, Research, and Technology and SchoolNet contacts at each school
Provide professional development and training for SchoolNet to data teams within schools on how to access and utilize existing data.	Ongoing	Department of Accountability, Research, and Technology
Data Teams work with PLC teams to analyze reports for the purpose of informing instruction.	Ongoing	School-based data teams & Coordinator of Research and Program Evaluation, Instructional Coaches

Goal 3: Assess information technology (IT) literacy.

Target 1	All students are technology literate.
Direct Benefit	Access to information, employability (workplace readiness), post-secondary readiness, collaboration, communication, self-expression, problem solving.
Reality	Student ability varies greatly; problem-solving abilities often lacking; social applications often exceed academic; help needs to be interactive;
Gap/Action	Clickable or bubble help could further learning; help needed with both technical and analytic aspects; i-Chat help (with teachers only)
Progress Indicators	Word processing tools, using tools for the right job: 1. Word-processing/Spreadsheet 2. Music/iPods, Multimedia, Presentations 3. Electronic Communication

Collaborative Strategies to Meet Goal 3, Target 1	Timeline	Responsibility
Assignments that require use of technology application skills.	Ongoing	Teachers, Media Center, TV studio
Teachers walk through different programs to make sure students are confident in various programs.	Yearly	Teachers, Media Center, TV studio
Lesson plans and units geared to promote creative problem solving and choice with use of technology as an integral element; not an additional step in the learning process.	Ongoing	Teachers, Media Center, TV studio
Flexible grouping to assist children with low technological skills and more challenging work for those children who excel in technology.	Ongoing	Teachers, Media Center, TV studio
Provide opportunities for students to learn to match the task with the appropriate technology and to problem solve or trouble shoot basic programs.	Ongoing	Teachers, Media Center, TV studio

Target 2	
All instructional personnel are technology literate.	
Direct Benefit	More personnel who are technology literate where teachers can lead by enthusiasm, demonstration, more inquiry type learning, variety of lessons, increase differentiation.
Reality	Widely varied different, teachers who are technology advanced are willing to use more technology tools. Teachers who are not technologically skilled are reluctant to use these tools and are wary of solo experimentation; all teachers are mandated to be TSIP certified for license renewal.
Gap/Action	Teachers with technology skills seek to develop their skills even greater and integrate into their instruction. Instructional Coaches need to help broaden those who are hesitant.
Progress Indicators	1. Teachers seek out Instructional Coach. 2. Computer carts and labs are being used. 3. Hits on your school web site go up. 4. Use of blackboard increases. 5. Feedback from parents and students.

Collaborative Strategies to Meet Goal 3, Target 2	Timeline	Responsibility
Professional Development and follow through with updated training, (example Kidspiration)	Ongoing	Principals, Technology Lead Teachers, Instructional Coaches
Highlight teacher and student successes with use of technology in school news.	Weekly to Monthly	Principals, Technology Lead Teachers, Instructional Coaches
Sharing at faculty meetings.	As appropriate	Principals, Technology Lead Teachers, Instructional Coaches
Common planning times for school teams and Instructional Coaches.	Yearly	Principals

Target 3	
All paraprofessionals and support staff are technology literate.	
Direct Benefit	Instructional Coaches and other support staff will have more time with classroom interaction. Student data and other office information will be more readily accessible.
Reality	Some office personnel are skilled in these applications.
Gap/Action	More SASI and SchoolNet training.
Progress Indicators	Paraprofessionals and support staff demonstrate the ability to access student records, grades, SOL's scores, School Net reports etc., quickly and easily.

Collaborative Strategies to Meet Goal 3, Target 3		Timeline	Responsibility
Continue ongoing training for office staff.		Ongoing	Department of Human Resources, Department of Accountability, Research, and Technology
Continue training for School Center for guidance and other personnel who need to publish on the web site.		Yearly	Communications Coordinator, Lead Web Page Coordinators

Target 4	Students meet expectations for technology utilization pertaining to their subject and grade level as described by school division technology plans. (Refer Goal 3, Target 1.)		
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Direct Benefit	Students will utilize technology as a learning tool within the context of their subject and grade level.		
Reality	Technology literacy strands are outlined in all four content area curriculum.		
Gap/Action	Curricular strands by content area are not fully disseminated and at use in all schools		
Progress Indicators	Common quarterly benchmark assessments will demonstrate technology literacy in each of the four content areas.		

Collaborative Strategies to Meet Goal 3, Target 4		Timeline	Responsibility
Develop and deliver benchmark assessments that demonstrate technology literacy by grade level and content area.		2009-2010	Department of Accountability, Research, and Technology
Design models for technology portfolios for students that demonstrate technology literacy by grade level and content area.		2009-2010	Department of Accountability, Research, and Technology

Goal 4: Ensure that local technology plans are consistent with the state technology plan.

Target 1	School divisions will have technology plans that are consistent with the components of the state technology plan. All schools will have technology plans that are consistent with the components of their division technology plan.		
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Direct Benefit	Alignment with the state technology plan assures all components of technology planning are covered and developed.		
Reality	Currently we are using the state template to revise and develop our technology plan for 2007-2009.		
Gap/Action	The technology plan was presented to the school board in the spring of 2007. Included will be revisions to the AUP and required Internet safety curriculum.		
Progress Indicators	1. Technology Plan is adopted by the board in the spring of 2009. 2. Technology Plan including AUP and Internet Safety is approved by the State.		

Collaborative Strategies to Meet Goal 4, Target 1	Timeline	Responsibility
Technology advisory committee will review each section of the technology plan.	Ongoing	Technology Advisory Committee
Department of Accountability, Research, and Technology staff collaborates to review components of the State Technology Plan.	2009-2010	Department of Accountability, Research, and Technology
Department of Accountability, Research, and Technology staff collaborates to write / revise Albemarle County Technology Plan	2009-2010	Department of Accountability, Research, and Technology

Target 2	All schools and school divisions will evaluate annually the progress and effectiveness of their technology plans.
Direct Benefit	Measuring the effectiveness and progress of a strategic plan provides accountability and an opportunity to refocus priorities or direction.
Reality	An evaluation tool or process needs to be developed.
Gap/Action	Current practice is to provide the school board with an annual report on progress each spring.
Progress Indicators	1. Evaluation tool / survey developed 2. School Board annual Technology report delivered and approved.

Collaborative Strategies to Meet Goal 4, Target 2	Timeline	Responsibility
Develop a tool to evaluate the technology plan	2009-2010	Technology Advisory Committee with Department of Accountability, Research, and Technology
Monitor progress indicators quarterly	Ongoing	Technology Advisory Committee with Department of Accountability, Research, and Technology
Develop and deliver annual Technology Plan report for presentation to the School Board.	Annually	Technology Advisory Committee with Department of Accountability, Research, and Technology

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

*Support Structures***Protocols****TECHNICAL SUPPORT AND SERVICE**

Office of Technology staff reviews the work order tracking system daily and prioritizes tasks based on the impact of each issue. Prioritization factors include:

- Number of users affected
- Complexity of the problem
- Resources required

At minimum, the technical support staff visits each site on a weekly basis. During each visit, the Principal, Technology Troubleshooter, or Technology Lead Teacher is consulted to review and prioritize workload.

Work orders are prioritized according to the following criteria:

Priority 1

Initial Contact by Technician: Within 30 minutes

Target Resolution: Within 4 hours

Example criteria:

- A server is not functioning
- A network device is not functioning (2 or more workstations with the same network connectivity problem)
- 2 or more workstations experiencing the same problem with a time-sensitive application and no alternative is available
- An administrative workstation is not functioning and no alternative is available
- AV equipment for a large group setting is not functioning and no alternative is available
- A security breach leaves a server or network device vulnerable
- A backup failure

Support Procedure:

- Technology Troubleshooter notifies the Help Desk. If no resolution: Help Desk contacts the technician and manager.
- Technician contacts the Technology Troubleshooter within 30 minutes. If no resolution: Technician is on-site within 1 hour.

Priority 2

Initial Contact by Technician: Within 1 day (8 business hours)

Target Resolution: Within 2 days (16 business hours)

Example criteria:

- 2 or more workstations experiencing the same time-sensitive application problem but an alternative is available
- A “critical” lab computer is not functioning, but an alternative is available
- “Critical” AV equipment is not functioning, but an alternative is available
- An administrative computer is not functioning, but an alternative is available
- A network printer is not functioning, but an alternative is available
- Single workstation with a hardware or software problem (hot swap with final resolution within 2 weeks)

Support Procedure:

- Technology Troubleshooter notifies the Help Desk. If no resolution: Help Desk contacts the technician.
- Technician contacts the Technology Troubleshooter within 8 business hours.

Priority 3

Target Resolution: Within 2 weeks

Example criteria:

- Non-urgent equipment repairs
- AV equipment is not functioning
- Basic training requests

Priority 4 (Projects)

Target Completion: Determined through collaboration by support team, management team, Technology Troubleshooter, Technology Lead Teacher or school designee

Examples:

- New hardware installations or upgrades
- New software installations or upgrades
- Other projects assigned by the management team

UNSUPPORTED EQUIPMENT

Equipment that does not meet current standards and support criteria is considered *unsupported* equipment. Technical support and hardware/software resources are not provided for unsupported equipment. Only supported equipment will be reported on Office of Technology inventories.

HOME COMPUTER SUPPORT

Technical support is not provided for home or personal technology equipment. Requests for recommendations for appropriate and reliable local service providers may be made through the Office of Technology Help Desk. Requests for personal purchase recommendations may also be made through the Office of Technology Help Desk.

Acquisition of Hardware and Software

Source of Equipment	Protocol for Support	Comments
School or Department Funds	Supported only with prior approval from Assistant Director, Office of Technology or designee	Schools and departments should consult with the Office of Technology staff prior to processing technology-related purchase
Donation	Supported only with prior approval from Assistant Director, Office of Technology or designee	Citizens or businesses wanting to donate used technology equipment may be referred to “Computers4Kids”
Fundraising Programs	Supported only with prior approval from Assistant Director, Office of Technology or designee	
Special Grants	Supported only with prior approval from Assistant Director, Office of Technology or designee	This includes PTO funds
Office of Technology Funds	Equipment purchased with Office of Technology funds is fully supported throughout the manufacturer warranty term, or longer as determined by Assistant Director, Office of Technology or designee	

Schools should maintain an inventory of all equipment received by the school through approved local purchases, donations, etc. This equipment should be noted on the annual inventory submitted to the Office of Technology. As the inventories of all schools are reviewed and purchase plans are developed, schools that have purchased computers from local funds will receive additional allocation considerations.

Surplus Equipment

As the Office of Technology deems equipment inoperable or no longer meeting supported standards, it will be disposed of in accordance with School Board policy DN (School Properties Disposal Procedure).

Software

Software is considered a learning resource and should be selected based on instructional criteria established in School Board policy IIAB. In addition, with the purchase of software there are a number of technical considerations, including hardware specifications, installation and technical support. Office of Technology staff will work with the Office of Instruction to help identify and publish lists of instructional software titles that support and enhance the curricula.

Single Copy Purchases

Teachers purchasing single copies should consult their Technology Troubleshooter to ensure that all instructional and technical considerations have been made. The school is responsible for the installation and technical support of single copy purchases.

Multiple Copy, Lab Pack, and Site License Purchases

Software should be evaluated using the Learning Resources Review Form. Approval from the building principal is required. Consultation with the Office of Technology staff must be made prior to purchase to insure instructional and technical requirements are met.

Division-Wide Purchase

Office of Technology staff, in accordance with all applicable School Board Policies, will approve instructional software titles intended for division-wide use. Funding for division-wide instructional software may be provided through the Office of Technology, Office of Instruction, or Albemarle Resource Center.

Fund 2115 – Computer Technology

Object Code Description	Adopted 2007-08 Amount	Adopted 2007-08 FTE	Adopted 2008-09 Amount	Adopted 2008-09 FTE	Adopted 2009-10 Amount	Adopted 2009-10 FTE
111400 - SALARIES-OTHER MANAGEMENT	\$91,422	1.00	\$94,487	1.00	\$94,032	1.00
114300 - SALARIES-OTHER TECHNICAL	\$1,012,452	21.00	\$1,036,759	21.00	\$1,058,549	21.00
123500 - OT/WAGES-SYS ANALYST/PROG	\$20,645		\$21,645		\$21,645	
126500 - OT/WAGES-MECHANIC	\$0		\$0		\$20	
130000 - PART-TIME WAGES	\$1,000		\$0		\$0	
160100 - STIPENDS-CAREER INCENTIVE	\$0		\$0		\$0	
160300 - STIPENDS-STAFF/CUR. DEVL	\$500		\$500		\$13	
160900 - SALARY RESERVE--BONUS	\$0		\$0		\$0	
210000 - FICA	\$86,145		\$88,231		\$89,829	
221000 - VIRGINIA RETIREMENT SYS.	\$175,493		\$163,956		\$167,129	
231000 - HEALTH INSURANCE	\$129,213		\$139,545		\$147,945	
232000 - DENTAL INSURANCE	\$4,767		\$5,061		\$5,566	
241000 - VRS GROUP LIFE INSURANCE	\$11,037		\$10,068		\$10,259	
270000 - WORKERS COMPENSATION	\$0		\$0		\$0	
312505 - PROF. SERV.-UVA	\$10,000		\$10,000		\$10,000	
312710 - COMPUTER SUPPORT	\$500		\$500		\$0	
312712 - TECHNOLOGY TRAINING	\$750		\$750		\$0	
320000 - TEMP. HELP SERVICE FEES	\$200		\$200		\$0	
331600 - R&M EQUIP.-POWER EQUIP.	\$1,100		\$1,100		\$0	
332100 - MAINT. CONTRACT-EQUIP.	\$54,000		\$54,000		\$54,000	
332104 - MAINT.-DATA PROC. EQUIP	\$8,000		\$8,000		\$8,000	
332111 - MAINT.-AUDIO/VISUAL EQUIP	\$1,000		\$1,000		\$0	
350000 - PRINTING & BINDING	\$0		\$0		\$0	
520100 - POSTAL SERVICES	\$750		\$750		\$750	
520300 - TELECOMMUNICATIONS	\$14,400		\$14,400		\$0	
520301 - TELEPHONE-LOCAL	\$1,100		\$1,100		\$210	
520302 - TELEPHONE-LONG DISTANCE	\$1,100		\$1,100		\$275	
520304 - TELECOMM.-DATA LINES	\$358,000		\$358,000		\$338,000	
520309 - TELEPHONE-MOBILE	\$0		\$0		\$47,400	
540100 - LEASE/RENT-EQUIPMENT	\$0		\$0		\$5,665	
540301 - LEASE/RENT-SOFTWARE	\$134,965		\$209,965		\$208,000	
550100 - TRAVEL-MILEAGE	\$29,468		\$30,683		\$25,000	
550400 - TRAVEL-EDUCATION	\$2,500		\$2,500		\$1,000	
580000 - MISCELLANEOUS EXPENSES	\$6,000		\$6,000		\$2,000	
580100 - DUES & MEMBERSHIPS	\$500		\$500		\$500	
580500 - STAFF DEVELOPMENT	\$20,000		\$20,000		\$16,000	
600100 - OFFICE SUPPLIES	\$5,500		\$6,000		\$4,500	
600700 - REPAIR & MAINT. SUPPLIES	\$500		\$0		\$0	
600705 - PARTS & MATERIALS-A/V	\$10,000		\$10,500		\$10,500	
600710 - PARTS & MATERIALS-DP	\$54,000		\$54,000		\$94,236	
600800 - VEHICLE & EQUIP.-FUEL	\$0		\$0		\$558	
600900 - VEHICLE & EQUIP.-SUPPLIES	\$0		\$0		\$63	
601200 - BOOKS & SUBSCRIPTIONS	\$750		\$750		\$200	
601600 - DATA PROCESSING SUPPLIES	\$500		\$0		\$350	
601700 - COPY SUPPLIES	\$250		\$250		\$250	
800200 - FURNITURE/FIXTURES-ADDL	\$0		\$0		\$0	
800700 - ADP EQUIPMENT-ADDL	\$25,000		\$25,000		\$23,750	
800710 - DATA PROCESSING SOFTWARE	\$3,000		\$3,000		\$3,000	
939999 - TRANSFER TO OTHER FUNDS	\$1,000,000		\$1,000,000		\$1,000,000	
TOTAL	\$3,276,507	22.00	\$3,380,300	22.00	\$3,449,194	22.00

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

*Budget Projections***2009-10 CIP Budget and Spending Plan**

FUNDING AMOUNTS AND SOURCES

Funding Source	2008-09 Appropriated Budget Amount	Estimated 2009-10 Budget Amount (subject to change)
State Grant (VPSA)	\$700,000*	\$700,000*
Instructional CIP	\$550,000	\$550,000
Administrative CIP	\$175,000	\$175,000
Computer Replacement Cycle	\$1,000,000	\$1,000,000
TOTAL	\$2,425,000	\$2,425,000

* Funding to support the Virginia DOE's web-based SOL Testing initiative

APPROXIMATE EXPENDITURES FOR MAJOR PROJECTS, 2009-10

Computer Replacement Cycle

1750 computers per year	contingent on lease agreements
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Infrastructure, Equipment, Services

Servers and Maintenance	\$125,000
Network Equipment Upgrades	\$100,000
Telecommunications Equipment Upgrades	\$75,000
Telecommunications Services (WAN & Internet)	\$358,000
Telecommunications Services (Cell Phones)	\$47,400

Printer Replacement Cycle

75 printers per year	\$50,000
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Instructional Technology

Projectors, Document Cameras, Interactive White Boards, etc...	\$250,000
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Optional Budget and Spending Plan

The Office of Technology's operational budget describes the allocation of resources for providing the staff and infrastructure necessary to carry out the mission of the department in support of the Albemarle County Public School's Strategic Plan. With the formation of the Department of Accountability, Research, and Technology, the Office of Technology now exists within a larger budgetary context. This provides more resources, including staffing, to ensure both administrative and instructional technology are leveraged to improve learning opportunities for students.

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

*Technology Staffing***School-Based Technology Staffing****TECHNOLOGY LEAD TEACHER**

The Technology Lead Teacher's primary division-level responsibility is to serve as the school-based instructional leader for the integration of technology into curriculum, instruction, and assessment. The Technology Lead Teacher has the responsibility to serve as the liaison between the school and the Department of Accountability, Research, and Technology.

Responsibilities:

- Provide instructional leadership in the content area.
- Serve as a mentor in the content area.
- Make recommendations on staff development and assumes leadership in planning staff development at the building level.
- Attend division Lead Teacher meetings and communicates all pertinent information from Lead Teacher meetings to building staff and administration.
- Stay informed about county and state-level issues related to the content/program area; reports staff questions and feedback to the appropriate Department of Accountability, Research, and Technology.
- Maintain an inventory of curriculum-related materials at the building level
- Provide leadership and support to building level committees that relate to content/program area (e.g., School Improvement Team, child study, curriculum issues, intervention programs, instructional technology, media services, etc.).
- Assist with the evaluation, revision, and implementation of the curriculum at the division level and participates in the evaluation and selection of textbooks, software, and other instructional materials.
- Assist with the evaluation, revision, and implementation of the curriculum at the division level and participates in the evaluation and selection of textbooks, software, and other instructional materials.
- Assist in the integration of the content curriculum across other curriculum areas at the building level.
- Pursue continued training in the content area through course work, workshops, and in-service programs and keeps abreast of the national, state, and local trends in education through professional conferences, literature, and organizations.
- Work with principal in ensuring compliance with all federal, state, and local mandates specific to content/program area.

SCHOOL TECHNOLOGY TROUBLESHOOTER

The School Technology Troubleshooter serves as liaison between the school and the Office of Technology.

Responsibilities:

- Investigate technology-related problems and implements a series of corrective steps.
- Attend Technology Troubleshooter meetings.
- Coordinates support duties with the Office of Technology.
- Contact the Office of Technology for support as needed.

SCHOOL-BASED WEB PAGE COORDINATOR (PROPOSED)

The School-Based Web Page Coordinator develops and updates the school web site and performs associated web page and account management functions at the school level.

Responsibilities:

- Develop and update the school web pages at the direction of the Principal.
- Train teachers and staff to develop and maintain their own web pages.
- Serve as the first point of contact for support and questions related to school web pages.
- Create web page accounts and grant site permissions for users at the school.
- Ensure all pages comply with the Acceptable Use Policy IIBE and other web communication policies and guidelines for content and accessibility.
- Attend division-level training and roundtable sessions on related topics.
- Assist building-level web users with their individual sites.
- Perform other web services, as required (e.g., making templates, administering surveys).

LEAD WEB PAGE COORDINATOR (PROPOSED)

The Lead Web Page Coordinator performs all duties of a School-Based Web Page Coordinator which includes developing and updating the school web site and performing associated functions at the school level. In addition, the Lead Web Page Coordinator provides support, training, and emergency backup for a designated group of School-Based Web Page Coordinators at other locations throughout the Division.

Responsibilities:

- Develop and update the school web pages at the direction of the Principal.
- Train teachers and staff to develop and maintain their own web pages.
- Serve as the first point of contact for support and questions related to school web pages.
- Create web page accounts and grant site permissions for users at the school.
- Ensure all pages comply with the Acceptable Use Policy IIBE and other web communication policies and guidelines for content and accessibility.
- Attend division-level training and roundtable sessions on related topics.
- Serve as the emergency backup Web Page Coordinator for designated schools throughout the Division.
- Facilitate Web Page Coordinator meetings and develop training at least four times per year.
- Provide support, troubleshooting and programming expertise for School-Based Web Page Coordinators needing assistance with our current content management system.
- Perform site redesigns during transitions when a primary Web Page Coordinator is not available (ex. When a WPC leaves the Division and a replacement has not yet been chosen.).
- Perform other advanced web services, as required (e.g., making templates, administering surveys).
- Be accessible to School-Based Web Page Coordinators as needed, and available in emergency situations for web-site outages or errors when School-Based Web Page Coordinator can not be reached.

Division-Level Technology Staffing

Division-level responsibilities related to educational technology include:

- Design, development and implementation of an integrated and comprehensive instructional technology program to support the implementation of the content area curricula.
- Coordination of instructional technology training.
- Support for school and division level personnel, parents, School Board members, and the community related to the effective use of educational technology.
- Direction and guidance for technology training.
- Technical support for instructional and administrative hardware, software and networks.
- Technical planning, policies and procedures for instructional and administrative hardware, software and networks.
- Technical support for audio-visual equipment.

MATRIX FOR DIVISION LEVEL TECHNOLOGY STAFFING

Department of Accountability, Research and Technology		
Chief Information Officer & Systems Coordinator		
Assistant Director, Accountability	Assistant Director, Information Management and Instructional Technology	Assistant Director, Technology Services (Office of Technology)
Coordinator of Research and Program Evaluation (1)	Coordinator of Student Databases (1)	Manager of Support (2)
Office Associate (1)	Database Programmer Analyst (1)	Senior Network Administrator (2)
	Software Application Specialist (2)	Network Administrator (4)
	Senior Systems Engineer (1)	Technology Support Specialist (8)
	Systems Engineer (2)	Technology Support Specialist – A/V (1)
		Office Help Desk Associate (1)

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

Collaboration Activities

ACPS has a rich history of cooperation and collaboration with the University of Virginia's Curry School of Education, including the Technology Infusion Project and Technology Literacy Challenge Fund Grants. The Division also maintains a collaborative relationship with the University of Virginia's School of Continuing and Professional Studies relative to the conduction of graduate level courses designed to address Virginia's *Technology Standards for Instructional Personnel*.

Additional collaborative projects include partnerships with the Virginia Educational Technology Alliance (VETA), Virginia Society for Technology in Education (VSTE), Virginia School University Partnership (VSUP) and Computers for Kids (C4K). The Division is a participating member of the Shenandoah Valley Technology Consortium (SVTC) and participates in all consortium-sponsored activities and workshops.

In recent years, Albemarle County Public Schools has strengthened its collaboration with vendors, including SchoolNet. In July 2009, ACPS will co-sponsor a conference with SchoolNet, the Curry School, and VSUP.

Evaluation of the Technology Plan

The evaluation of this plan will be conducted as part of an annual report to the School Board. This report will include the following:

- Specific information on the status of the Goals, Targets, Progress Indicators, and Strategies.
- Student assessment data related to the Virginia Standards of Learning.
- Student success on industry-standard assessments of technological proficiency.
- Student-to-computer ratio data and updated hardware/software standards.
- School-level activity on subscription technology services.
- Technology awards and recognition received by staff and students.
- Staff participation in technology-related training and professional development activities.
- Monitor how the shift from the CTIP support model to Instructional Coaches with school-based troubleshooters impacts student technology support and classroom usage.

Baseline data and measurable improvement will be integral components of this evaluation. Compliance audits will be included in the annual report to the School Board.

2009-2010

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

ADDENDUM: INTERNET SAFETY



AUP Internet Safety Plan Overview

I. Instructional Philosophies and Strategies to be Supported by Internet Access in Schools:

Albemarle County Public Schools' philosophy on Internet use in education is to promote educational excellence by facilitating resource sharing, innovation, and telecommunications as outlined in the Technology Acceptable Use policy and applicable regulations. Internet and computer network and non-network access is available to authorized students, teachers, and other staff in the Albemarle County Public Schools.

Specific strategies supported by Internet access include but are not limited to:

- A. Staff members assigning or permitting Internet use will seek to promote a safe online environment by preventing access by students to material that the school division deems to be harmful to juveniles, and as defined in § 18.2-390 of the Code of Virginia.
- B. Staff members assigning student Internet use will recommend safe search strategies and resources which meet the curricular needs of the assignment and the developmental level of the student.
- C. Staff members assigning or permitting Internet use will provide or arrange for instruction in acceptable use of the Internet based on information or materials provided by the Office of Instruction. Topics to be addressed include:
- D. Content of the Technology Acceptable Use Policy and Regulations
- E. Generally accepted rules of network etiquette and safety
- F. Copyright guidelines
- G. Respect for use of time and resources
- H. Evaluating sites for appropriateness and validity
- I. Discriminating among types of information sources and assessing the appropriateness of using the Internet as a resource for a specific learning activity.

II. Roles and responsibilities for division personnel and students with regard to Internet

safety: In the detailed Internet Safety plan below, division personnel implementation roles and responsibilities are detailed in the "Implemented By:" section of each component. Student roles and responsibilities are defined in the "Student Regulations" section of the AUP which are reviewed and signed by students and parents and kept on file at school. An overview and outline of the AUP and the Internet Safety Plan is available in electronic format for all to view through the Albemarle County Public Schools website: <http://www.k12albemarle.org/>.

III. Roles and responsibilities for community stakeholders with regard to the acceptable use of

electronic-based resources and Internet: In the detailed Internet Safety plan below, community stakeholders roles and responsibilities are detailed in the "Implemented By:" section and are further detailed in the "Community Outreach" section of each component.

IV. Safety measures in place, including filtering and monitoring procedures: In accordance with § 22.1-70.2 of the Code of Virginia, Albemarle County Public Schools has implemented a technology for the division's computers having Internet access to filter or block Internet access through such computers to child pornography as set out in § 18.2-374.1:1 of the Code of Virginia and obscenity as defined in § 18.2-372 of the Code of Virginia.

Specific strategies and guidelines include but are not limited to:

- A. Staff members assigning or permitting Internet use will seek to prevent access by students to material that the school division deems to be harmful to juveniles, and as defined in § 18.2-390 of the Code of Virginia.
- B. Staff members assigning student Internet use will recommend safe search strategies and resources which meet the curricular needs of the assignment and the developmental level of the student.
- C. School Division employees who, based upon job responsibilities, have access to monitor the technology use of students or staff must follow guidelines established by the site administrator (school

principal or administrative director). These guidelines shall be placed on file with the Office of Technology.

- D. Any Office of Technology employee monitoring the technology use of students or staff must follow established site-based or District-level guidelines, a copy of which is included in these regulations.

Measures for Future Implementation:

- A. There will be an ongoing evaluation by the Office of Technology of measures in the AUP to promote a safe environment for all school division employees and students. The action plan will be reviewed as needed.

- V. **Methods by which the division ensures data and network security:** The normal operation and maintenance of the division's technical infrastructure and services requires that general usage and activity is monitored, data and electronic communications are routinely backed up, and programs or other devices are employed to maintain the functionality, integrity, or security of the network infrastructure.

VI. **Technology-based applications and hardware prohibited for employee and student use:**

While ACPS does not prohibit any particular technology-based applications or hardware because of their educational implementation possibilities. There are guidelines in place as detailed in the Technology Acceptable Use Policy regarding inappropriate use including but not limited to:

- A. Some world-wide resources available on the Internet are not of educational value in a school setting and, if not filtered, should not be accessed.
- B. Students may access personal e-mail accounts and other forms of electronic communication with specific, written parental permission as provided on the Good Computer User Agreement, to the extent that access does not interfere with the educational process as determined by school staff. Student access to personal e-mail at school is intended for educational purposes and is not guaranteed to be private. No student may use Albemarle County Public Schools software or equipment to access any service for the purpose of conducting a purchase or participating in any other commercial activity.
- C. Employees should not use electronic mail for confidential matters or privileged communications, such as student education records, unless appropriate measures are taken to ensure confidentiality and to maintain the appropriate privilege. Employees shall adhere to all school, School Division, state and federal laws, policies and standards including the Family Education Rights and Privacy Act (FERPA).

Penalties:

- A. Inappropriate use will result in an immediate termination of access and other privileges relating to use and may also result in disciplinary action (up to and including suspension or expulsion, formal reprimand, or dismissal) as well as potential civil or criminal liability and prosecution.
- B. Administration, faculty, or staff may request that the systems administrator deny, revoke, or suspend specific user access in the event of violation of the Technology Acceptable Use policy.
- C. The use of computer resources is a privilege, not a right. Misuse of Internet access or a violation of this regulation may result in the account or the user's access privilege being denied, revoked, or suspended. Misuse may also subject the user to disciplinary action up to and including suspension, expulsion, formal reprimand, or dismissal as well as potential civil or criminal liability and prosecution. Any illegal activities will be reported to the appropriate agencies.

VIII. **Procedures to address breaches of Internet and intranet security and safety:**

- A. Administration, faculty, or staff may request that the systems administrator deny, revoke, or suspend specific user access in the event of violation of this policy.
- B. Maintaining the security of School Division computers, networks and other technology systems is of great importance and requires the cooperation and diligence of all users. Any user who identifies a security problem must notify the site administrator (principal or director) who must then notify the School Division Help Desk. The user shall not demonstrate the problem to others. Any user who

attempts or causes a breach of the system security shall have his/her privileges revoked and may be subject to any additional disciplinary and/or legal action.

Legal actions resulting from breaches:

- A. Inappropriate use will result in an immediate termination of access and other privileges relating to use and may also result in disciplinary action (up to and including suspension or expulsion, formal reprimand, or dismissal) as well as potential civil or criminal liability and prosecution.
- B. Use or transmission of any material in violation of any United States or state law is strictly prohibited. Also prohibited are the uses or transmission of the following: material protected by federal or state intellectual property laws; copyrighted material (except in accordance with School Board policy EGAAA); licensed material; threatening, harassing, or obscene material; and/or pornographic material. In addition, it shall be prohibited to access, attempt to access, use, or attempt to use the Internet or other computer network or non-network facilities for any other unauthorized purposes, including but not limited to commercial activities, introduction of viruses, and manipulation or corruption of systems, files, and other related resources.

IX. **Ongoing professional development opportunities for each stakeholder group:** The Internet Safety plan below names all stakeholders in the “Implemented By:” section who will be provided guided ongoing professional development in the process of incorporating Internet Safety into the curriculum.

X. **Community outreach activities that are consistent with the program’s goals:** In the detailed Internet Safety plan below, community outreach activities are detailed in the in the “Community Outreach” section of each component.

XI. **Division procedures for the evaluation and revision of the AUP, including the Internet safety program:** The evaluation of the AUP occurs not only when mandated by the Virginia Department of Education but when determined as needed by ACPS to ensure the safety of division employees, students and network infrastructure.

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I. Cyber Citizenship

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I. Cyber Citizenship

A. K-2

1. Cyber Community Citizenship

a. Vocabulary

- (1) Cyberspace-Virtual Internet community in which real people interact through electronic means.
- (2) URL-Defined as Universal/Uniform Resource Locator, is another name for a Web address. The URL is located at the top of a web page and generally begins with <http://www>.
- (3) Netiquette-Blend of "network" and "etiquette" describing the informal code on Internet conduct.

b. Suggested Resources and Activities

- (1) (Grade K) iSafe: Cyber Community Citizenship-In this lesson, students will develop an understanding of the concept of community and apply it to knowledge of the Internet: compare the physical community to the abstract Cyberspace community. A discussion will take place after the song "I Got a Buddy" is played to introduce Internet safety. (Taught by CTIP, LMS when teaching the community unit, Classroom Teacher, Guidance, PE)
- (2) (Grades 1-2) iSafe: Cyber Community Citizenship-This lesson will reinforce the comparison of physical community to cyber community through discussion and in an activity mini-booklet. (Taught by CTIP, LMS, Classroom Teacher)
- (3) (Grades K-2) Website: <http://www.doe.virginia.gov/VDOE/Technology/OET/Internet-safety-guidelines.shtml> The Virginia Department of Education Office of Educational Technology Guidelines and Resources for Internet Safety in Schools; has a link at the bottom of its site to a long list of resources.

- (4) (Grades K-2) Website: www.NetSmartz.org/education Online curriculum and interactive/downloadable activities for students in K-2
- (5) (Grades K-2) Website: <http://www.safekids.com/kidsrules.htm> Printable pledge for kids to take to be safe
- (6) (Grades K-2) Website: http://www.cybersmartcurriculum.org/curr_over/ Additional curriculum ideas with scope and sequence
- c. Implemented By:
 - (1) 3-5 grade iMentors with Teachers teach Netiquette early in the year before or when doing a web-based activity
 - (2) Additional support and instruction provided by LMS, Classroom Teacher and Guidance
- d. Community Outreach
 - (1) County-wide web-based resource
 - (2) Coordinate a county-wide/city technology convention for parents, students and community members to include student projects, activities, robotics, resources, vendors, and Internet safety
 - (3) Informative brochure created by ACPS for parents and students to review at home
 - (4) Include in student handbook
- e. Follow-Up/Assessment
 - (1) CTIP coordinates program to be sure all grade K-2 classrooms are visited by 3-5 graders

B. 3-5

1. *Cyber Community Citizenship*

- a. Vocabulary
 - (1) Cyberspace-Virtual Internet community in which real people interact through electronic means.
 - (2) URL-Defined as Universal/Uniform Resource Locator, is another name for a Web address. The URL is located at the top of a web page and generally begins with <http://www>.
 - (3) Bulletin Boards-Message boards, public areas on the Internet where messages or comments can be posted for other board members to read and reply to.
 - (4) Posting-Placing a message or photo to an online message board or website.
 - (5) Chat Room-A virtual room, or gathering place, for Internet users with shared interests to congregate and converse.
 - (6) IM-Instant Messaging-Real time Internet communication. A "private chat room".
 - (7) Screen name-Online name or nickname. An alias used in Cyberspace.
 - (8) Buddy List-Instant message addresses of favorite users. List enabled designated users to know when their "buddy" is online so that both can easily communicate.

- (9) Flame-To send a mean or hurtful electronic message.
- (10) Mentors Club-iSafe website where Mentors exchange ideas, chat with other Mentors and learn Internet safety information to provide to their schools and communities.
- (11) Mentor "Link"-Adult in a school who helps iSafe Student Mentors organize events and activities.

b. Suggested Resources and Activities

- (1) (Grades 3-4) iSafe: Cyber Citizenship and Safety Online-This lesson compares real community to cyber community. Includes rules, community members and appropriate communications. (Taught by CTIP, LMS, classroom teacher, guidance, PE in context of classroom community and rules)
- (2) (Grade 3) iSafe: Cyber Community Citizenship-This lesson introduces terms such as URL, cyberspace, e-mail, etc. Many Internet concepts are introduced. Compares the physical community to the cyber community, and there's a folded book activity. (Taught by classroom teacher, CTIP, LMS)
- (3) (Grade 3) iSafe: Cyber Bullying-This lesson is all about being friendly vs. bullying. Delves into social interactions, feelings, compliments, etc. and, then, compares this to online treatments. (Taught by classroom teacher, guidance counselor, CTIP)
- (4) (Grade 3) iSafe: Personal Safety-This lesson uses the character iBuddy to address safety tips for the cyber community. Includes sample dialogue for the lesson as well as an FBI tips reference page and an online field trip via FBI kids' site. (Taught by Classroom teacher, CTIP, Guidance Counselor)
- (5) (Grades 3-5) iSafe: Music and Movement-This lesson includes the music for songs that can be used to teach about Internet safety. A CD can be ordered thru iSafe at a cost. Movement activities that go with lyrics and chants, etc. (Taught by music teacher, PE teacher, classroom teacher)
- (6) (Grades 3-5) iSafe: Text Messaging Safety-This lessons involves defining text messaging, IM'ing and the vocabulary that is associated with these forms of communication. It also includes personal and security consequences. (Taught by parents, any adult in the school that has to address the impact of text messaging within the educational setting)
- (7) (Grades 3-5) iSafe: Safety and Your Identity-This lesson differentiates between common information and personal information. It also allows discussions on identifying dangers and understanding consequences when personal information is shared. There's a song included that supports the objectives of this lesson. (Taught by Parents, all teachers and staff)
- (8) (Grade 4) iSafe: Personal Safety- This lesson focuses on making responsible choices while on the Internet and includes open-ended questions and activities. The lesson also includes mini-poster of tips and the link to FBI field trip. Spanish activity sheets available. (Taught by

CTIP, Guidance Counselor, classroom teacher, LMS, GRT)

- (9) (Grade 4) iSafe: Cyber Bullying-This lesson introduces netiquette. Great one-page posters that offer tips for display or home communication. Kids get a chance to edit a copy of an e-mail based on info learned in this lesson. Great integration of the OLWEUS anti-bullying model in ACPS. (Taught by Classroom teacher, CTIP, Guidance Counselor)
- (10) (Grade 5) iSafe: Cyber Community Citizenship-This lesson builds on 3rd-4th grade lessons in comparing physical community to cyber community. Students become mentors for other students, and there's an iMentor registration opportunity. There's a PowerPoint and a web activity that supports this lesson. Student activity includes comparing places of real life to cyber places and talks about appropriateness. (Taught by CTIP, LMS, Classroom Teacher, Guidance Counselor)
- (11) (Grade 5) iSafe: Cyber Bullying-This lesson builds on the 4th grade lesson and offers the same posters and tip sheets. It has a PowerPoint to support the lesson. New information includes IM'ing, and there's an IM aptitude test included. Real focus on Netiquette and what to do when bullying happens. Great integration of the OLWEUS anti-bullying model in ACPS. (Taught by CTIP, Classroom teacher, Guidance Counselor, LMS)
- (12) (Grade 5) iSafe Online Personal Safety Unit-This series of four separate lessons can be taught in a long session or in a series of shorter ones. There is a component on online predators and predator identification if this is deemed appropriate for your students. Other topics include choosing passwords, screen names, dealing with Internet strangers, reporting suspicious behaviors, etc. Includes a PowerPoint to use with lessons. (Taught by Classroom teacher, CTIP, Guidance Counselor, LMS)
- (13) (Grades 3-5) Website: An Internet Pledge for kids...
<http://www.safekids.com/kidsrules.htm>
- (14) (Grades 3-5) Website: Chart of acronyms used in text messaging, blogging, IM'ing...
<http://www.netlingo.com/e-mailsh.cfm>
- (15) (Grades 3-5) Website: Cyberethics for kids (interactive)
<http://www.cybercrime.gov/rules/kidInternet.htm>
- (16) (Grades 3-5) Website: Surf Swell Island (Disney)
http://disney.go.com/surfswell/index.html?name=ac_med6_surfSwell

c. Implemented By:

- (1) 6-8 Grade iMentors with Teachers during individual classroom visits to 3rd-5th grade classes
- (2) Guidance-in conjunction with bullying counseling
- (3) Additional support and instruction provided by LMS, GRT and Parents

d. Community Outreach

- (1) County-wide web-based resource

INTERNET SAFETY

Being educated and empowered to take control of online experiences.

- (2) Informative brochure created by ACPS for parents and students to review at home
- (3) Include in student handbook
- (4) Awareness Posters
- e. Follow-Up/Assessment
 - (1) CTIP coordinates program to be sure all grade 3-5 classrooms are visited by 6-8 graders

C. 6-8

1. *Cyber Community Citizenship*

a. Vocabulary

- (1) Chat Room-A virtual room, or gathering place, for Internet users with shared interests to congregate and converse.
- (2) IM-Instant Messaging-Real time Internet communication. A "private chat room".
- (3) Screen name-Online name or nickname. An alias used in Cyberspace.
- (4) Buddy List-Instant message addresses of favorite users. List enabled designated users to know when their "buddy" is online so that both can easily communicate.
- (5) YE-Youth Empowerment-iSafe campaign in which students take ownership of what they have learned by reaching out to others through peer-to-peer communication.
- (6) Mentors Club-iSafe website where Mentors exchange ideas, chat with other Mentors and learn Internet safety information to provide to their schools and communities.
- (7) Mentor "Link"-Adult in a school who helps iSafe Student Mentors organize events and activities.

b. Suggested Resources and Activities

- (1) (Grade 6) iSafe: Cyber Community Citizenship-Learners will be provided with reference materials to engage in an enrichment activity, which includes creating a simple awareness campaign about cyber community issue awareness at school and/or locally. (Taught by Guidance/Health Teacher/CTIP/Intervention Period Teacher/Teacher Advisory)
- (2) (Grade 6) iSafe: Integrated Literacy-Learners will review and reinforce the security concepts associated with interaction in the cyber community. Learners will then engage in an enrichment activity which involves reading developed stories to another class either inside own school or at neighboring school as appropriate. (Taught by Teacher Advisory/Facilitated in the Teacher Advisory Group in collaboration with the Classroom Teacher/CTIP/Intervention Period Teacher)
- (3) (Grade 6) iSafe: AUP's-In this lesson, learners will publicize the information found in the school's AUP, and/or, if necessary, make positive recommendations for change in the school's AUP. (Taught by CTIP/LMS/Intervention Period Teacher)
- (4) (Grade 7) iSafe: Negative Networking: A Look at Gangs Online-In this lesson, learners will

- be provided with background information to create a poster or flyer awareness campaign about online gang activity to promote safe online interaction. (Taught by Guidance/Health/CTIP/Teacher Advisory/Facilitated in the Teacher Advisory Group in collaboration with the Classroom Teacher)
- (5) (Grade 7) iSafe: Cyber Community Citizenship: Students will develop a comprehensive understanding of the concept of community and its application to the Internet. Learners will be provided with reference materials to engage in an enrichment activity, which includes writing articles for the school and/or local newspaper about what they learn regarding cyber citizenship. (Taught by Classroom Teacher/CTIP/Intervention Period Teacher/Teacher Advisory/Facilitated in the Teacher Advisory Group in collaboration with the Classroom Teacher)
 - (6) (Grade 7) iSafe: AUP's: In this lesson, learners will publicize the information found in the school's AUP, and/or, if necessary, make positive recommendations for change in the school's AUP. (Taught by CTIP/LMS/Intervention Period Teacher)
 - (7) (Grade 7) iSafe: Legal Trends in Cyber Safety and Security: Learners will interact in the classroom environment through group discussion and examination of current legal trends as they apply to central cyber safety and security issues. Learners will be provided with materials to engage in an enrichment activity, which involves helping to form policy by writing to an elected official concerning a legal cyber security/safety issue of their choice. Resources and information for further involvement in policy are also provided. (Taught by Health Teacher/CTIP)
 - (8) (Grade 8) iSafe: Cyber Community Citizenship-Students will develop a comprehensive understanding of the concept of community and its application to the Internet. Learners will be provided with reference materials to engage in an enrichment activity, which includes creating an awareness poster campaign. (Taught by Classroom Teacher/CTIP/Intervention Period Teacher/Teacher Advisory/Facilitated in the Teacher Advisory Group in collaboration with the Classroom Teacher)
 - (9) (Grade 8) iSafe: AUP's-In this lesson, learners will publicize the information found in the school's AUP, and/or, if necessary, make positive recommendations for change in the school's AUP. (Taught by CTIP/Principal/LMS/Intervention Period Teacher)
 - (10) (Grade 8) iSafe: Cyber Security-Learners will become more familiar with online communication and consequences of uneducated interaction on the Internet such as virus downloading and cyber bullying. Learners will interact in the classroom environment through group discussion, and creation and presentation of skits on cyber security issues. (Taught by Health Teacher/CTIP/Intervention Period Teacher/Teacher Advisory/Facilitated in the Teacher Advisory Group in collaboration with the Classroom Teacher)

c. Implemented By:

- (1) Teachers (i.e. Technology Elective Teacher)-work in conjunction with CTIP on Youth Empowerment program for peer-to-peer communication
- (2) CTIP-work in conjunction with Mentor Teacher on Youth Empowerment program for peer-to-peer communication
- (3) Guidance-discuss in conjunction with bullying counseling
- (4) Teacher Advisory Groups
- (5) Additional support provided by Principal

d. Community Outreach

- (1) County-wide web-based resource
- (2) Informative brochure created by ACPS for parents and students to review at home
- (3) Include in student handbook
- (4) Student groups aid teachers of 3-5 students to implement iSafe program

e. Follow-Up/Assessment

- (1) CTIP coordinates program to be sure lessons are implemented

D. 9-12

1. Security: Cyber Citizenship

a. Vocabulary

- (1) YE-Youth Empowerment-iSafe campaign in which students take ownership of what they have learned by reaching out to others through peer-to-peer communication.
- (2) PSA's (Public Service Announcements)-A TV or radio commercial that educates people on specific issues such as the need to be safe online.

b. Suggested Resources and Activities

- (1) (Grades 9-12) iSafe: Lesson on Legal Trends in Cyber Safety and Security-Student group discussion on current trends, writing letters to congressional leaders on the topic of their choice, and future involvement ideas
- (2) (Grades 9-12) iSafe: Lesson on Online Freedoms and the Culture of the Internet Community-Students will take the online preassessments, students enroll in the iMentor program, teacher guides discussion about the Internet, students read an article about the cultural divide, students divide into groups and investigate Internet issues in the US and abroad and present their findings to the class, teacher leads class discussion on Internet freedoms, students host a parent/community night to inform on Internet safety
- (3) (Grades 9-12) iSafe: Webcast Lesson on Security-Cyber Citizenship-Students take online preassessment, watch webcasts and discuss at predetermined breaks, students engage Community Leaders in a meeting to discuss issues

(4) (Grades 9-12) iSafe: Service Learning Curriculum-Access materials to implement the iSafe program by students through service learning and using the iSafe Student Toolkit as a reference

(5) (Grades 9-12) iSafe: Webcast Lesson on Social Issues-Watch webcasts and discuss at predetermined breaks, complete cooperative group exercises, create Internet safety message with film

(6) (Grades 9-12) Include colleges and job impact information in lessons

c. Implemented By:

(1) Health Teacher-teach lessons under personal safety theme

(2) Government Teacher-teach legal trends and online freedoms

(3) Social Studies Teacher-incorporate Internet safety into community service projects

(4) Broadcast Studio Teacher, Leadership class, Key Club, Mentors Programs-work in conjunction with CTIP to enable Youth Empowerment program participants to create PSA's for the school

(5) CTIP-work in conjunction with Mentor Teacher to enable Youth Empowerment program participants to create PSA's for the school and/or conduct sessions in the beginning of the year.

(6) Guidance-discuss in conjunction with bullying counseling

d. Community Outreach

(1) County-wide web-based resource

(2) Informative brochure created by ACPS for parents and students to review at home

(3) Include in student handbook

(4) Put PSA's up on Public Access channel

e. Follow-Up/Assessment

(1) CTIP coordinates program to be sure lessons are implemented

2. *Social Issues*

a. Vocabulary

(1) YE (Youth Empowerment)-iSafe campaign in which students take ownership of what they have learned by reaching out to others through peer-to-peer communication.

(2) PSA's (Public Service announcements)-A TV or radio commercial that educates people on specific issues, such as the need to be safe online.

b. Suggested Resources and Activities

(1) (Grades 9-12) iSafe: Lesson-Students take online assessments, students conduct community surveys, parents take a survey, students register in iMentor program

(2) (Grades 9-12) iSafe: Lesson on Online Gambling-Students take online preassessment, teacher leads discussion about online gambling, students read and discuss Online

INTERNET SAFETY

Being educated and empowered to take control of online experiences.

- Gambling reference page, students debate issues of online gambling, discuss the debate as a class, iMentors conduct a Parent presentation
- (3) (Grades 9-12) iSafe: Webcast Lesson on Cyber Harassment-Bullying and Stalking Online-Students take online preassessment, watch webcasts and discuss at predetermined breaks, students start a poster/digital announcements campaign to promote anti-cyber bullying policy
 - (4) (Grades 9-12) iSafe: Webcast Lesson on Pornography on the Web-Students take online preassessment, watch webcasts and discuss at predetermined breaks, students start an iAdopt a school program to teach to lower grade levels
 - (5) (Grades 9-12) iSafe: Lesson on Online Relationships-Students take online preassessment, students enroll in the iMentors program, teachers engage students in discussion on online relationships, divide students in groups to complete an activity page to spur conversation, students present findings, teacher leads whole class discussion on online activities, students create a drop box for whole school to ask questions and express concerns about online safety
 - (6) (Grades 9-12) iSafe: Webcast Lesson on Cyber Relationships-Students take online preassessment, watch webcasts and discuss at predetermined breaks, students divide into groups and discuss cyber relationships and report back to class, an assembly experience on the topic occurs
- c. Implemented By:
- (1) Health Teacher-teach lessons under personal safety theme
 - (2) Broadcast Studio Teacher-work in conjunction with CTIP to enable Youth Empowerment program participants to create PSA's for the school
 - (3) CTIP-work in conjunction with Mentor Teacher to enable Youth Empowerment program participants to create PSA's for the school and helps to coordinate whole school presentation
 - (4) Guidance-in conjunction with bullying counseling
- d. Community Outreach
- (1) County-wide web-based resource
 - (2) Informative brochure created by ACPS for parents and students to review at home
 - (3) Include in student handbook
 - (4) Put PSA's up on Public Access channel
- e. Follow-Up/Assessment
- (1) CTIP coordinates program to be sure lessons are implemented

II. Cyber Safety

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II. Cyber Safety

A. K-2

1. Personal Safety

a. Vocabulary

- (1) Internet Safety-Being educated and empowered to take control of online experiences.

b. Suggested Resources and Activities

- (1) (Grade K) iSafe: This lesson focuses on the reinforcement of the idea that it is unsafe to talk to strangers. Teachers will lead a discussion about why it is important to get help from an adult to make the Internet safe. A copy of an e-mail message is shared so students know what it looks like. The word stranger is discussed. (Taught by CTIP, LMS, Classroom Teacher, Guidance)
- (2) (Grade 1) iSafe: This lesson reinforces the discussions of strangers from (K) and discusses the importance of telling adults when the child feels uncomfortable and what to do about it. The iBuddy character is referred to again for reinforcement of what that character would do. The terms personal and permission are introduced. The FBI's 5 Internet Safety Tips are included to share. (Taught by CTIP, LMS, Classroom Teacher, Guidance, PE)
- (3) (Grade 2) iSafe: Safety and Identity- This lesson includes discussion of why everyone is special and different and focuses on the term/concept of identity. The use of the song

“PRIVACY” from the purchased iSafe CD is available to reinforce the idea that personal identity/information is private, especially on the Internet. (Taught by CTIP, LMS, Classroom (4) teacher, Guidance, PE)

(5) (Grades K-2) Website: <http://www.cybercrime.gov/rules/rules.htm> The U.S. Department of Justice Cybercrime site presents tips for online safety and privacy

(6) (Grades K-2) Website: <http://www.ftc.gov/bcp/online/edcams/kidzprivacy/> Federal Trade Commission’s Kidz Privacy website

c. Implemented By:

(1) Teachers-Teach in PE curriculum in conjunction with OLWEUS Anti-Bullying Committee.

(2) OLWEUS Anti-Bullying Committee-Give whole school presentation and work with PE teachers to implement in classroom.

(3) Guidance in conjunction with bullying counseling

(4) CTIP during a computer-based lesson

d. Community Outreach

(1) County-wide web-based resource

(2) Informative brochure created by ACPs for parents and students to review at home

(3) Whole school presentation to include parents and community

(4) Include in student handbook

e. Follow-Up/Assessment

(1) CTIP coordinates program to be sure lessons are implemented

2. *Cyber Security*

a. Vocabulary

(1) File-The specific location of data within a computer record.

(2) Parental Controls-Special features or software packages that enable restricted access to Internet sites.

b. Suggested Resources and Activities

(1) (Grades K-2) iSafe: This lesson develops the understanding that computers can become infected with viruses and that caution should be used when opening e-mail. The concepts of computer virus and how it can spread, and e-mail can carry viruses through attachments are discussed and are reinforced with a hands-on activity of making a mini-booklet. A discussion with open-ended questions is included. A selection from iSafe songs is a culminating activity. (Taught by CTIP, LMS, Classroom Teacher)

(2) (Grade 1) iSafe: Safety and Identity-This lesson discusses how to differentiate between common information and personal information and what dangers lie in revealing personal information to strangers while online. Terms include: personal information, communication, Internet, online. (Taught by CTIP, LMS, Classroom Teacher, Guidance, PE)

INTERNET SAFETY

Being educated and empowered to take control of online experiences.

- (3) (Grade 2) iSafe: This lesson reinforces an understanding of the need to make responsible choices to make sure students are safe while using the Internet. Dangers of Cyberspace are discussed. Posters, iBuddy e-mail and role-playing are included. (Taught by CTIP, LMS, Classroom Teacher, Guidance, PE)
- (4) (Grades K-2) Website: <http://www.fbi.gov/fbikids.htm> Federal Bureau of Investigation
- (5) (Grades K-2) Website: <http://www.isafe.org/> Non-profit foundation supporting online safety experiences
- (6) (Grades K-2) Website: <http://www.getnetwise.org/> Resource for parents and children on how to keep kids and computers safe. It also has an extensive list of safe sites for kids and families
- (7) (Grades K-2) Website: http://disney.go.com/surfswell/index.html?name=ac_med6_surfSwell Disney's interactive treasure hunt for learning how to be safe
- (8) (Grades K-2) Website: <http://pbskids.org/license/> Official "Get Your Web License"
- (9) (Grades K-2) Website: <http://www.kidscomjr.com/games/safety/safety.html> Iggy and Rasper's Tips for Internet Safety and Good Manners
- c. Implemented By:
 - (1) Teachers-Teach in PE curriculum in conjunction with OLWEUS Committee.
 - (2) OLWEUS Anti-Bullying Committee-Give whole school presentation and work with PE teachers to implement in classroom.
 - (3) Additional support and instruction provided by CTIP, LMS, Classroom Teacher, Guidance, PE
- d. Community Outreach
 - (1) County-wide web-based resource
 - (2) Informative brochure created by ACPS for parents and students to review at home.
 - (3) Whole school presentation to include parents and community
 - (4) Include in student handbook
- e. Follow-Up/Assessment
 - (1) CTIP coordinates program to be sure lessons are implemented

B. 3-5

1. *Online Personal Safety*

a. Vocabulary

- (1) Internet Safety-Being educated and empowered to take control of online experiences.
- (2) Identifying Information-Personal information that can be used by online predators to distinguish you from another person and possibly to find you in real life (e.g.: name, gender, age, etc.).

b. Suggested Resources and Activities

- (1) (Grades 3-5) iSafe: Spam Scam Safety-Lesson involves discussion on SPAM. (in Spanish and English) (Taught by CTIP, Classroom Teacher)
- (2) (Grades 3-5) iSafe: Spyware Risks and Acceptable Use Policies-Two lessons that offer more advanced discussions on Cybersecurity risks and the need for institutional AUP's. AUP PowerPoint available. (Taught by CTIP, LMS, Classroom Teacher)
- (3) (Grades 3-5) Website: Additional resources and easy to read scope and sequence chart.
http://www.cybersmartcurriculum.org/curr_over/
- (4) (Grades 3-5) Website: More education for teachers, including publications...
<http://csriu.org/index.html>
- (5) (Grades 3-5) Website: Another web resource that offers online and hard copy activities, animated characters in the lesson plans, etc. <http://www.netsmartz.org/>
- (6) (Grades 3-5) Website: An online field trip for Internet safety by FBI
<http://www.fbi.gov/kids/k5th/safety2.htm>
- (7) (Grades 3-5) Website: Safety tips for various age groups and more
http://www.bewebaware.ca/english/safety_tips_8_10.aspx
- (8) (Grades 3-5) Website: Additional resources on Internet Safety topics, and detailed glossary of terms <http://www.getnetwise.org/>
- (9) (Grades 3-5) Website: Printable Internet safety poster for upper elementary
<http://www.cybersmart.org/for/kids.asp>
- (10) (Grades 3-5) Website: "Get Your Web License", an interactive PBS site
<http://pbskids.org/license/>
- (11) (Grades 3-5) Website: Iggy and Rasper's Internet Safety Game
<http://www.kidscomjr.com/games/safety/safety.html>
- (12) (Grades 3-5) Website: Online safety quiz <http://www.safekids.com/quiz/index.html>

c. Implemented By:

- (1) Teachers-Teach in PE curriculum in conjunction with OLWEUS Anti-Bullying Committee.
- (2) OLWEUS Anti-Bullying Committee-Give whole school presentation and work with health teachers to implement in classroom.
- (3) Additional support and instruction provided by CTIP and LMS.

d. Community Outreach

- (1) County-wide web-based resource
- (2) Informative brochure created by ACPS for parents and students to review at home
- (3) Whole school presentation to include parents and community
- (4) Include in student handbook

e. Follow-Up/Assessment

- (1) CTIP coordinates program to be sure lessons are implemented

2. *Cyber Security*

a. Vocabulary

- (1) File-The specific location of data within a computer record.
- (2) File Extensions-The three or more letters at the end of a file name (e.g.: .exe, .jpg, and .doc) defining the file "type", such as a text file, executable file, database file, or graphic file.
- (3) Parental Controls-Special features or software packages that enable restricted access to Internet sites.
- (4) Firewall-Set of related hardware and software programs designed specifically to protect a computer or computer network from unauthorized external use.
- (5) Code-Written instructions in a computing language.
- (6) Malicious Code-Intentionally destructive computer program (e.g.: viruses, worms, and Trojan horses).
- (7) Anti-virus-Software that protects a computer from malicious code.
- (8) SPAM-Mass mailing or posting of messages. Also known as Internet junk mail.
- (9) Flame-To send a mean or hurtful electronic message.
- (10) FW (Forward)-Informs the recipient a redirected message has been sent to them. The sender is not the author and, therefore, is suspicious.
- (11) Phishing-Phishing attacks use "spoofed" e-mails and fraudulent websites designed to fool recipients into divulging personal financial data (see "Spoofs/Spoofing").

b. Suggested Resources and Activities

- (1) (Grade 3) iSafe: *Cyber Security*-This lesson involves making responsible choices while using the Internet. This lesson introduces computer viruses and compares to health. Activity includes a mini-booklet to make. Spanish activity sheets available. (Taught by Classroom teacher, CTIP, LMS)
- (2) (Grade 4) iSafe: *Cyber Security*-This lesson involves all of gr. 3 lessons and builds into more in-depth vocabulary and concepts. Lesson includes a sample dialogue that the teacher can use. Introduces terms like attachment and more virus terminology. Mini-booklet available. (Taught by Classroom teacher, CTIP, Guidance Counselor, LMS)
- (3) (Grade 5) iSafe: *Cyber Security*-This lesson introduces malware, malicious, and code terms. It also involves proper e-mail protocols, etc. This lesson can be done with or without computers and involves a Handshake game that demonstrates how viruses spread, and discusses opening attachments, etc. This lesson involves the student as mentor and offers opportunity to register with iSafe. Other terms introduced: phishing, flaming, forwarding, spamming. PowerPoint and web activity available. (Taught by CTIP, Classroom Teacher, LMS)

c. Implemented By:

- (1) Teachers-Teach in PE curriculum in conjunction with OLWEUS Anti-Bullying Committee.
- (2) OLWEUS Anti-Bullying Committee-Give whole school presentation and work with PE teachers to implement in classroom.
- (3) Additional support provided by CTIP, LMS and Guidance.

d. Community Outreach

- (1) County-wide web-based resource
- (2) Informative brochure created by ACPS for parents and students to review at home
- (3) Whole school presentation to include parents and community
- (4) Include in student handbook

e. Follow-Up/Assessment

- (1) CTIP coordinates program to be sure lessons are implemented

3. *Cyber Bullying*

a. Vocabulary

- (1) Flame-To send a mean or hurtful electronic message.

b. Suggested Resources and Activities

- (1) (Grade 5) iSafe: Cyber Bullying Lesson-After completing a KEWL sheet, learners will be provided with reference materials to engage in an enrichment activity, which includes creating a Pledge Wall about cyber bullying awareness at the school. (Taught by Health Teacher)

c. Implemented By:

- (1) Teachers-Teach in PE curriculum in conjunction with OLWEUS Anti-Bullying Committee.
- (2) OLWEUS Anti-Bullying Committee-Give whole school presentation and work with PE teachers to implement in classroom.

d. Community Outreach

- (1) County-wide web-based resource
- (2) Informative brochure created by ACPS for parents and students to review at home
- (3) Whole school presentation to include parents and community
- (4) Include in student handbook

e. Follow-Up/Assessment

- (1) CTIP coordinates program to be sure lessons are implemented

C. 6-8

1. *Cyber Bullying and Harassment*

a. Vocabulary

- (1) Code-Written instructions in a computing language.

- (2) Malicious Code-Intentionally destructive computer program (e.g.: viruses, worms, and Trojan horses).
- (3) Trojan Horse-A malicious code that appears harmless yet launches a virus or worm.
- (4) Virus-Executable code (computer program) that infects or attaches itself to other executable code in order to cause destructive computer events.
- (5) Worm-Self-propagating computer virus embedded in a file.
- (6) Anti-virus-Software that protects a computer from malicious code.
- (7) Firewall-Set of related hardware and software programs designed specifically to protect a computer or computer network from unauthorized external use.
- (8) Attachment-A data file sent from one computer to another along with an e-mail or an instant message.
- (9) FW (Forward)-Informs the recipient a redirected message has been sent to them. The sender is not the author and, therefore, is suspicious.

b. Suggested Resources and Activities

- (1) (Grade 6) iSafe: Negative Networking: A Look at Gangs Online Lesson-In this lesson, learners will be provided with background information to create a poster or flyer awareness campaign to promote safe online interaction. (Taught by Health Teacher)
- (2) (Grade 6) iSafe: Safety in Online Gaming Lesson-Students will understand the concept of online gaming, its safety and security risks, and develop an action plan for informing others of how to play online safely. (Taught by Health Teacher/Intervention Period/Broadcast)
- (3) (Grade 6) iSafe: Cyber Bullying Lesson-After completing a KEWL sheet, learners will be provided with reference materials to engage in an enrichment activity, which includes creating a Pledge Wall about cyber bullying awareness at the school. (Taught by Health Teacher)
- (4) (Grades 6-7) iSafe: Risks of Spyware Lesson-In this lesson, learners will develop Public Service Announcements (PSA) to inform others about spyware. The enrichment activity will provide guidance to broadcast one or more of the PSA's at school or through local news media. (Taught by CTIP/Broadcast Teacher)
- (5) (Grades 6-7) iSafe: Cyber Security Lesson-Learners will develop an understanding of proper e-mail protocol, and the necessity of using caution when opening e-mail to protect computer security and inform others about cyber security issues. (Taught by CTIP/Health Teacher)
- (6) (Grades 6-8) iSafe: Safe Website Design Lesson-Learners will design and build a website using Internet safety principles. (Taught by Health Teacher/CTIP/Exploratory Teacher)
- (7) (Grade 7) iSafe: Cyber Harassment Lesson-Learners will develop an awareness of the problems associated with cyber communication and the various aspects of cyber

- harassment including cyber bullying and cyber stalking. This awareness will lead to an understanding of safer Internet usage to minimize risks. (Taught by Health Teacher)
- (8) (Grade 7) iSafe: Cyber Harassment Lesson-The current lesson format is designed to provide an opportunity to write a story for younger children to be shared in a school setting. (Taught by Language Arts Teacher)
- (9) (Grade 7) iSafe: Cyber Security Lesson-Learners will become more familiar with online communication and consequences of uneducated interaction on the Internet such as virus downloading and cyber bullying. Learners will interact in the classroom environment through group discussion, and creation and presentation of skits on cyber security issues. (Taught by CTIP/Language Arts Teacher)
- (10) (Grade 7) iSafe: Introduction to Graphs with Internet Safety Lesson-Learners will continue developing their understanding of online dangers through a math-themed lesson aimed at reinforcing basic graphing skills. Students will be introduced to the bar graph and practice making bar graphs. (Taught by Math Teacher)
- (11) (Grade 7) iSafe: Online Shopping Risks Lesson-Learners will interact in the classroom environment through group discussion and examination of various online shopping sites using a self-created evaluation tool. Learners will develop and publicize an informational web page about safe online shopping. (Taught by Classroom Teacher/Broadcast Teacher)
- (12) (Grade 7) iSafe: Social Networking in Online Communities Lesson-Learners will become familiar with the various types of online communities, including dangers and benefits associated with online social networking, and tips for safe and secure online communication. In this lesson, learners will be provided with reference materials to develop and broadcast public service announcements to inform their peers about safe online social networking. (Taught by CTIP/Broadcast Teacher/Intervention Period Teacher)
- (13) (Grade 7) iSafe: Web Logs – A Positive Approach to Blogging Lesson-Learners will model safe and secure blogging techniques through the maintenance of a blog concerning ongoing school events and activities. (Taught by Language Arts Teacher)
- (14) (Grades 7-8) iSafe: Safety in Online Gaming Lesson-Learners will interact in the classroom environment through group discussion and the creation of an online gaming creed. (Taught by Health Teacher/Intervention Period Teacher/Broadcast)
- (15) (Grades 7-8) iSafe: Cyber Bullying Lesson-Students will practice netiquette as they communicate with others on the Internet and develop resources to cope with online bullying. (Taught by Health Teacher)
- (16) (Grade 8) iSafe: Negative Networking: A Look at Gangs Online Lesson-In this lesson, learners will be provided with background information to create a poster or flyer awareness campaign to promote safe online interaction. Learners will identify ways online communities

can be used in negative ways; become familiar with the negative ways the Internet is being used to network gangs and gang activity; identify online services designed to counteract negative online activity; discuss how online gang interaction can help authorities; identify online gang activity that needs to be reported to authorities immediately; and to know to whom to report online gang activity. (Taught by Health Teacher)

c. Implemented By:

- (1) Teachers-Teach in health curriculum in conjunction with OLWEUS Anti-Bullying Committee.
- (2) OLWEUS Anti-Bullying Committee-Give whole school presentation and work with health teachers to implement in classroom.
- (3) Additional support and instruction provided by CTIP.

d. Community Outreach

- (1) County-wide web-based resource
- (2) Informative brochure created by ACPS for parents and students to review at home
- (3) Whole school presentation to include parents and community
- (4) Include in student handbook

e. Follow-Up/Assessment

- (1) CTIP coordinates program to be sure lessons are implemented

2. *Predator Identification*

a. Vocabulary

- (1) Identifying Information-Personal information that can be used by online predators to distinguish you from another person and possibly to find you in real life (e.g.: name, gender, age, etc.).

b. Suggested Resources and Activities

- (1) (Grade 6) iSafe: Predator Identification Lesson-Students will be able to identify the characteristics of tactics used by an online predator and make wise choices while interacting online. (Taught by Health Teacher)
- (2) (Grade 6) iSafe: Willing Participant Lesson-Learners will create a poster or bulletin board to inform others about strangers on the Internet and to provide strategies to stay safe in online communication. (Taught by Health Teacher)
- (3) (Grade 7) iSafe: Predator Identification Lesson-Learners will be provided with materials to engage their parents in an online survey about Internet safety issues. Students will be able to identify the characteristics of tactics used by an online predator and make wise choices while interacting online. (Taught by Health Teacher)
- (4) (Grade 7) iSafe: Willing Participant Lesson-Learners will create a poster or bulletin board to inform others about strangers on the Internet and to provide strategies to stay safe in online communication. Students will understand the concept of willing participation understand the

- safety risks of pursuing online relationships/friendships. (Taught by Health Teacher)
- (5) (Grade 8) iSafe: Predator Identification Lesson-Students will be able to identify the characteristics of tactics used by an online predator and make wise choices while interacting online. (Taught by Health Teacher)
- (6) (Grade 8) iSafe: Willing Participant Lesson-Students will understand the concept of willing participation and understand the safety risks of pursuing online relationships/friendships. Learners will create a poster or bulletin board to inform others about strangers on the Internet and to provide strategies to stay safe in online communication. (Taught by Health Teacher)
- c. Implemented By:
- (1) Teachers-Teach in health curriculum in conjunction with OLWEUS Anti-Bullying Committee.
- (2) OLWEUS Anti-Bullying Committee-Give whole school presentation and work with health teachers to implement in classroom.
- d. Community Outreach
- (1) County-wide web-based resource
- (2) Informative brochure created by ACPS for parents and students to review at home.
- (3) Whole school presentation to include parents and community
- (4) Include in student handbook
- e. Follow-Up/Assessment
- (1) CTIP coordinates program to be sure lessons are implemented

D. 9-12

1. Privacy and the Internet

- a. Vocabulary
- (1) Identity Theft-When someone uses your personal info (e.g.: Social Security #, credit card #) to steal your identity for illegal purposes. The fastest-growing crime in the U.S.
- (2) Phishing-Phishing attacks use "spoofed" e-mails and fraudulent websites designed to fool recipients into divulging personal financial data (see "Spoofs/Spoofing").
- (3) Spoofs/Spoofing-Fake e-mail messages or web pages mimicking those of legitimate businesses in order to trick you into providing personal information (identity theft).
- b. Suggested Resources and Activities
- (1) (Grades 9-12) iSafe: Lesson on Identity Theft-Students take online preassessment, enroll in iMentors program, students discuss identity theft issues, students prepare a presentation for parents on identity theft
- (2) (Grades 9-12) iSafe: Lesson on Homeland Security-Students take online preassessment, enroll in iMentors program, teacher leads discussion on cyber issues related to homeland

security, students complete CD-ROM or paper-based activity, students share out what they learned, students take online post-assessment

- (3) (Grades 9-12) iSafe: Webcast on Privacy and the Internet-Students take the online preassessment, students watch the webcast, teacher leads three directed discussion breaks during the webcast, students participate in cooperative group exercises at the conclusion of the webcast, students participate in the iAdopt a school program to share findings to lower grade levels, students take the online post-assessment
- (4) (Grades 9-12) iSafe: Lesson on Online Privacy-Students take online preassessment, teacher guides discussion on online privacy, students take online privacy survey, teacher leads whole-class discussion of survey, students write a letter to the editor on this issue, students complete the online post-assessment
- (5) (Grades 9-12) iSafe: Lesson on Online Shopping-Students take online preassessment, teacher leads class discussion on online shopping, in groups, students brainstorm what can go wrong in online shopping, students read and discuss an online shopping reference page, in groups, students complete an online shopping evaluation form activity and explain their findings, teacher leads whole class concluding discussion, students create a brochure to educate others, students take the online post-assessment

c. Implemented By:

- (1) Teachers-Teach in health curriculum in conjunction with OLWEUS Anti-Bullying Committee.
- (2) OLWEUS Anti-Bullying Committee-Give whole school presentation and work with health teachers to implement in classroom.

d. Community Outreach

- (1) County-wide web-based resource
- (2) Informative brochure created by ACPS for parents and students to review at home
- (3) Whole school presentation to include parents and community
- (4) Include in student handbook

e. Follow-Up/Assessment

- (1) CTIP coordinates program to be sure lessons are implemented

2. *Security: Malicious Code and Pornography on the Web*

a. Vocabulary

- (1) Looping-Website code that does not allow a visitor to exit. Feature of many adult Internet sites.

b. Suggested Resources and Activities

- (1) (Grades 9-12) iSafe: Webcast Lesson on Cyber Security-Malicious Code-Student take online preassessment, students watch the webcast and participate in three teacher-facilitated student discussion breaks during the webcast, students participate in cooperative

group exercises at the conclusion of the webcast which include implementation of a plan for an Information table, students take the online or post-assessment

c. Implemented By:

- (1) Teachers-Teach in health curriculum in conjunction with OLWEUS Anti-Bullying Committee.
- (2) OLWEUS Anti-Bullying Committee-Give whole school presentation and work with health teachers to implement in classroom.

d. Community Outreach

- (1) County-wide web-based resource
- (2) Informative brochure created by ACPS for parents and students to review at home
- (3) Whole school presentation to include parents and community
- (4) Include in student handbook

e. Follow-Up/Assessment

- (1) CTIP coordinates program to be sure lessons are implemented

3. *Cyber Relationships & Harassment*

a. Vocabulary

- (1) SPAM-Mass mailing or posting of messages. Also known as Internet junk mail.

b. Suggested Resources and Activities

- (1) iSafe: Lesson on Online Social Networking-Students take online preassessment, teacher leads online social networking discussion, in groups or individually, students share what they have learned about online risks and create posters or webpages with safety tips, teacher leads class discussion, students help to create a student advisory board on online social networking, students take online post-assessment

c. Implemented By:

- (1) Teachers-Teach in health curriculum in conjunction with OLWEUS Anti-Bullying Committee.
- (2) OLWEUS Anti-Bullying Committee-Give whole school presentation and work with health teachers to implement in classroom.

d. Community Outreach

- (1) County-wide web-based resource
- (2) Informative brochure created by ACPS for parents and students to review at home.
- (3) Whole school presentation to include parents and community
- (4) Include in student handbook

e. Follow-Up/Assessment

- (1) CTIP coordinates program to be sure lessons are implemented

III. Intellectual Property

A. 3-5

1. Intellectual Property

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B. 6-8

1. Intellectual Property

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C. 9-12

1. Intellectual Property Theft

Page 31

III. Intellectual Property

A. 3-5

1. Intellectual Property

a. Vocabulary

- (1) Copyright-The exclusive rights to reproduce, publish, and sell things produced by the person who owns the copyright.
- (2) Intellectual Property-Material protected by copyright laws including songs, movies, software, and books.
- (3) Download-To copy information (data) from the Internet.
- (4) Plagiarism-Stealing someone else's work and pretending it's yours.

b. Suggested Resources and Activities

- (1) (Grade 3) iSafe: Be Responsible with Intellectual Property Lesson-Introduces the basic concept of what is intellectual property, using it from the Internet, and citing sources. Lesson provides a sample dialogue of exactly what to say. There's a "Cite your Source" activity with iBuddy worksheet. (Taught by Classroom teacher, LMS, CTIP, GRT, any other adults that work with students and conduct Internet research)
- (2) (Grade 4) iSafe: Intellectual Property Lesson-Students will learn the basic concepts of property and intellectual property and understand the basics of how to cite a source. Students will learn how to cite a source correctly. This lesson has great reference pages. Spanish pages available. (Taught by Classroom teacher, LMS, CTIP, GRT, any adult involved in research with students)
- (3) (Grade 5) iSafe: Intellectual Property-This lessons goes more in-depth on intellectual property. Provides K-W-L charts, scenarios, a PowerPoint, a web activity and reference sheets. Introduces copyright and plagiarism terms. (Taught by Classroom Teacher, LMS, CTIP, GRT and any adult that does research with students)

c. Implemented By:

- (1) LMS-in conjunction with Educational databases instruction

- (2) Teachers-providing a reference poster and/or weblink to put in all classrooms
- (3) Additional support and instruction provided by CTIP and GRT
- d. Community Outreach
 - (1) County-wide web-based resource
 - (2) Informative brochure created by ACPS for parents and students to review at home
 - (3) Include in student handbook
- e. Follow-Up/Assessment
 - (1) CTIP follows up with LMS to be sure all classes participate

B. 6-8

1. Intellectual Property

- a. Vocabulary
 - (1) Copyright-The exclusive rights to reproduce, publish, and sell things produced by the person who owns the copyright.
 - (2) Intellectual Property-Material protected by copyright laws including songs, movies, software, and books.
 - (3) Download-To copy information (data) from the Internet.
 - (4) Plagiarism-Stealing someone else's work and pretending it's yours.
 - (5) Piracy-Theft to produce counterfeit copyrighted software and other material.
- b. Suggested Resources and Activities
 - (1) (Grade 6) iSafe: iSafe Intellectual Property Unit- Students take online preassessment, students enroll in the iMentors program, teacher/LMS guides discussion on tangible vs. intangible (intellectual) property and link copyright to the concept, students complete an activity chart with or without computers to understand why intellectual property needs to be governed leading to developing a slogan campaign on intellectual property, students take online post-assessment. There are PowerPoints to supplement discussion. (Taught by LMS/Language Arts Teacher)
 - (2) (Grade 7) iSafe: Plagiarism and the World Wide Web Lesson-Students will define plagiarism, identify how plagiarism occurs, and understand the basic guidelines for fair use of intellectual property. (Taught by LMS/Language Arts or Social Studies Teacher)
 - (3) (Grades 7-8) iSafe: Plagiarism and the World Wide Web Lesson-Students will define plagiarism, identify how plagiarism occurs, and understand the basic guidelines for fair use of intellectual property. (Taught by LMS/Language Arts or Social Studies Teacher)
 - (4) (Grades 7-8) iSafe: P2P (Peer to Peer) Networking Lesson-Students identify the safety, security risks, and legal issues surrounding P2P networks. (Taught by CTIP/Intervention Period Teacher)

- (5) (Grades 7-8) iSafe: Learn Before You Burn Lesson-Students will take a survey about their own illegal download behavior and learn about the consequences of piracy. (Taught by LMS/Intervention Period Teacher)
- (6) (Grade 7) iSafe: Donny the Downloader on All About Piracy Lesson-Students create and display a slogan poster or website banner to create awareness about piracy. (Taught by LMS/Exploratory Teacher)
- (7) (Grade 8) iSafe: Mock Trial Activity-Students act out a mock trial about intellectual property based on a provided script. (Taught by Civics Teacher/Intervention Period Teacher)
- (8) (Grade 8) iSafe: Intellectual Review PowerPoint Lesson-Students view a PowerPoint about intellectual property and have a discussion about property rights. (Taught by LMS/Intervention Period Teacher)
- c. Implemented By:
 - (a) LMS-in conjunction with educational databases instruction
 - (b) Teachers-providing a reference poster and/or weblink to put in all classrooms
- d. Community Outreach
 - (1) County-wide web-based resource
 - (2) Informative brochure created by ACPS for parents and students to review at home
 - (3) Include in student handbook
- e. Follow-Up/Assessment
 - (1) CTIP follows up with LMS to be sure all classes participate

C. 9-12

1. *Intellectual Property Theft*

- a. Vocabulary
 - (1) Copyright-The exclusive rights to reproduce, publish, and sell things produced by the person who owns the copyright.
 - (2) Intellectual Property-Material protected by copyright laws including songs, movies, software and books.
 - (3) Download-To copy information (data) from the Internet.
 - (4) Plagiarism-Stealing someone else's work and pretending it's yours.
 - (5) Piracy-Theft to produce counterfeit copyrighted software and other material.
- b. Suggested Resources and Activities
 - (1) (Grades 9-12) iSafe: Lesson on Copyright and Fair Use-Students take online preassessment, teacher/LMS guides copyright and fair use discussion, students read and discuss copyright reference page, students complete activity sheets by conducting research, discuss the activity as a class, students make brochures to inform others of their findings.

- (2) (Grades 9-12) iSafe: Lesson on Learn B4U Burn-Students take online preassessment, enroll in the iMentors program, teacher/LMS guides class discussion on intellectual property, divide students into groups to conduct research on intellectual property from a certain viewpoint, groups present their viewpoints to the class, students complete a free-write activity discussing impact of illegal downloading, students take online post-assessment
- (3) (Grades 9-12) iSafe: Webcast Lesson on Intellectual Property-students take the online preassessment, students watch the webcast and participate three teacher-facilitated student discussion breaks during the webcast, participate in cooperative group exercises at the conclusion of the webcast, students prepare to give a presentation on Intellectual Property to the school or lower grade-level schools, take the online post-assessment
- c. Implemented By:
 - (1) LMS-in conjunction with Educational databases instruction
 - (2) Teachers-providing a reference poster and/or weblink to put in all classrooms
- d. Community Outreach
 - (1) County-wide web-based resource
 - (2) Informative brochure created by ACPS for parents and students to review at home
 - (3) Include in student handbook
- e. Follow-Up/Assessment
 - (1) CTIP follows up with LMS to be sure all classes participate

2009-2010

EDUCATIONAL TECHNOLOGY PLAN FOR ALBEMARLE COUNTY PUBLIC SCHOOLS

ADDENDUM: ACCEPTABLE USE OF TECHNOLOGY



ACCEPTABLE USE OF TECHNOLOGY

Internet and computer network and non-network access is available to authorized students, teachers, and other staff in the Albemarle County Public Schools. Albemarle County Public Schools' primary goal for technology use in education is to promote educational excellence by facilitating resource sharing, innovation, and telecommunications as outlined in this policy and applicable regulations. However, some world-wide resources available on the Internet are not of educational value in a school setting.

Students and/or their parents or other legal guardians shall, prior to beginning grades K, 3, 6 and 9 or otherwise entering a school, receive and sign an acknowledgment of this Policy and return same to the appropriate individual school. The school shall maintain an accurate record of who has returned the signed acknowledgment and shall respond accordingly.

Use of the Albemarle County Public Schools' Internet and computer facilities is a privilege, not a right. Inappropriate use will result in an immediate termination of access and other privileges relating to use and may also result in disciplinary action (up to and including suspension or expulsion, formal reprimand, or dismissal) as well as potential civil or criminal liability and prosecution.

Use or transmission of any material in violation of any United States or state law is strictly prohibited. Also prohibited are the uses or transmission of the following: material protected by federal or state intellectual property laws; copyrighted material (except in accordance with School Board policy EGAAA); licensed material; threatening, harassing, or obscene material; and/or pornographic material. In addition, it shall be prohibited to access, attempt to access, use, or attempt to use the Internet or other computer network or non-network facilities for any other unauthorized purposes, including but not limited to commercial activities, introduction of viruses, and manipulation or corruption of systems, files, and other related resources.

Administration, faculty, or staff may request that the systems administrator deny, revoke, or suspend specific user access in the event of violation of this policy.

Adopted: August 26, 1996
Amended: February 22, 1999; April 22, 2004; May 24, 2007

ACCEPTABLE USE OF TECHNOLOGY

Use of the Internet

Through the Internet, students and staff in the Albemarle County Public Schools have access to a variety of resources, including but not limited to:

1. World-wide electronic mail.
2. Library catalogs from around the world, including the Library of Congress.
3. Electronic databases and encyclopedias.
4. The World-Wide Web, a collection of Internet Resources.

Liability

1. The Albemarle County Public Schools will not guarantee the availability of access to the Internet and will not be responsible for any information that may be lost, damaged, or unavailable due to technical or other difficulties.
2. The accuracy and quality of information obtained cannot be guaranteed, nor can information sent or received be assured to be private.
3. Albemarle County Public Schools retains control, custody, and supervision of all electronic resources owned or leased by it. Any information generated, stored or sent through electronic resources is the same as any written documentation and may be subject to Freedom of Information Act inquiries, etc. The School Division reserves the right to monitor all use of electronic resources by employees and other users. There shall be no expectation of privacy of information on any equipment owned or leased by or operated within Albemarle County Public Schools.
4. In accordance with § 22.1-70.2 of the Code of Virginia, Albemarle County Public Schools has implemented a technology for the division's computers having Internet access to filter or block Internet access through such computers to child pornography as set out in § 18.2-374.1:1 of the Code of Virginia and obscenity as defined in § 18.2-372 of the Code of Virginia.

Responsibilities of School Staff and Standards for Technology Use

1. Staff members assigning or permitting Internet use will seek to prevent access by students to material that the school division deems to be harmful to juveniles, and as defined in § 18.2-390 of the Code of Virginia.
2. Staff members assigning student Internet use will recommend safe search strategies and resources which meet the curricular needs of the assignment and the developmental level of the student.
3. Staff members assigning or permitting Internet use will plan instruction utilizing materials provided through the Division's Internet Safety Program. Topics to be addressed include:
 - a. Content of this Policy and Regulations
 - b. Generally accepted rules of network etiquette and safety
 - c. Copyright guidelines
 - d. Internet Safety

- e. Other acceptable use/safety related topics
 - f. Respect for use of time and resources
 - g. Evaluating sites for appropriateness and validity
 - h. Discriminating among types of information sources and assessing the appropriateness of using the Internet as a resource for a specific learning activity.
4. All Albemarle County employees have the opportunity to publish Internet home pages, facilitated by the school or department Web Page Coordinator (or administrator's designee). Home pages must adhere to all applicable Albemarle County Public Schools guidelines.
 5. With appropriate notification and/or permission, student projects and other material relating to individual students may be published on the school division web server. In all cases, content must be appropriate and relevant to the mission and the business of the school division. Consent is obtained when a parent signs a hard copy of the Web Publishing Permission Form included in these Regulations. In no case shall information about a student such as home phone number, personal e-mail address, etc. be published.
 6. The use of the Internet to facilitate the purchase of school supplies, instructional resource materials or other products intended for use by students or staff must follow Albemarle County purchasing guidelines and all applicable policies.
 7. Students may not use staff members' e-mail accounts. Class accounts may be used by students under the direct supervision of the person to whom the account was issued. Teachers must apply for a class account by submitting an AUTHSCHLS form to their principal for approval.
 8. Audits of account information are routinely conducted. Accounts deemed dormant are investigated and may be removed.
 9. School Division employees may not abuse their access to technology systems. Abuse may consist of either excessive or unacceptable use. Generally, a use is unacceptable if it conflicts with the School Division's or individual School's or Department's purpose, goal, or mission or with an employee's authorized job duties or responsibilities. Incidental personal use of School Division technology systems must not interfere with the employee's job performance, must not violate any of the rules contained in this policy or any other policy and must not damage any hardware, software or communications system.
 10. Staff shall report any incident of harassment or any other unauthorized or inappropriate use of technology encountered over School Division computer resources to the building or department administrator who will report it to the Assistant Director, Office of Technology as appropriate.
 11. Staff and students shall not use access to technology systems for private financial gain, including the conduct of commercial activity for any business in which there is a personal interest, or for advertising or solicitation purposes.
 12. Staff shall not use School Division technology systems for personal, non-School Division purposes to solicit, proselytize, advocate or communicate the views of an individual or of non-school sponsored organizations except through means that have been provided specifically for such purposes (e.g., County Bulletin Board). However, the School Division recognizes that employees have the right to speak out on matters of public concern, and this provision shall not be construed to restrict or prohibit the legal rights of employees to engage in speech that is protected under federal or state laws.
 13. School Division employees who, based upon job responsibilities, have access to monitor the

- technology use of students or staff must follow guidelines established by the site administrator (school principal or administrative director). These guidelines shall be placed on file with the Office of Technology.
14. Any Office of Technology employee monitoring the technology use of students or staff must follow established site-based or District-level guidelines, a copy of which is included in these regulations.
 15. Global Distribution Lists exist to facilitate communication, in the conduct of school or Division business, with specified groups of staff. Use of Global Distribution Lists is limited to the business of the School Division. Sending mass e-mails to School Division employees or outside parties for non-school purposes is prohibited.
 16. Public Folders are created to provide multiple users an efficient means of communicating information, with either specified groups of School Division employees or with all School Division employees, in order to conduct the business of the School Division. Public folders will be created if and only if they serve the purpose of facilitating such communications. Public Folders should be used only for the purposes for which they were created. They are not a forum for the expression of personal opinions and should not conflict with the School Division's purpose, goal, or mission or with an employee's authorized job duties or responsibilities. The County Bulletin Board has been established to provide a single, non-work related avenue for employees to communicate non-work related business such as advertising, promoting non-School Division sponsored events, etc. The content of items posted on the County Bulletin Board must remain within acceptable limits for employee conduct.
 17. E-mail accounts are established only upon the receipt by the Office of Technology of a valid AUTHSCHLS form. E-mail accounts should be requested if and only if an employee must have access in order to fulfill the requirements of his or her job. Employees with e-mail accounts are responsible for maintaining their accounts in a manner that promotes the conservation of School Division resources. E-mail system backups are maintained for short periods of time for the purpose of disaster recovery only. Individual users are responsible for their own backups. E-mail communications may be subject to Freedom of Information Act inquiries.
 18. E-mail attachments should be used only when necessary. File attachments should be in a format that can be opened by the recipient and of a type appropriate to the content being transmitted. Files that are platform dependent or require the user to have software that is not commonly available are often unusable and waste Division resources.
 19. The creation of, change to, or deletion of employee e-mail accounts is accomplished by the submission of an AUTHSCHLS form to the Office of Technology. Forms should be accurately completed, signed by the appropriate supervisor, and submitted in a timely manner.
 20. All technology-related purchases or product demonstrations, including consultant and development services, must comply with the guidelines presented in the Division's Comprehensive Technology Plan.

Student teachers are not eligible for e-mail accounts as their work within the School Division is conducted under the direct supervision of the cooperating teacher/counselor. However, an AUTHSCHLS form, listing a university or private e-mail address, should be submitted to the Office of Technology. Their names will then appear in the Division's Global e-mail Address Book, and may be added to school distribution lists. Administrative interns are employees of the School Division and, as such, do receive e-mail accounts.

Responsibilities of Users and Standards for Technology Use

General Guidelines for Students

1. Students will comply with the Good Computer User Agreement they have signed.
2. Students will only access the Internet using school computer resources under appropriate supervision of a staff member.

General Guidelines for Staff

1. Employees of the School Board must follow and enforce this policy and regulation.
2. Users will use school computer resources in a responsible, ethical and legal manner. All division and school codes of conduct apply. Unethical or illegal activities include, but are not limited to: knowingly spreading viruses, violating copyright laws, using unauthorized software, impersonating another user, unauthorized entry, and/or destruction of computer systems and files.

General Guidelines for All Users

1. Users shall not use, create, distribute, import or otherwise deal with illegal, offensive, obscene, libelous language, pictures, or other similar material on any computer, network or the Internet.
2. Users shall not respond to harassment encountered on any technology system and shall report any such activity to the appropriate supervisor or administrator immediately.

Network and Workstation Guidelines for All Users

1. Users will access only files and data created and maintained by them, that are publicly available within the school network, or to which they have been given authorized access. This includes but is not limited to files residing on individual workstations, servers or other storage devices.
2. User files are not private. The School Division reserves the right to review the content of all computer accounts and files. Network administrators may review files and communications to keep the network working properly and to ensure that users are using the system responsibly.
3. Users will use the network without disrupting its use by others. Network users are expected to respect all forms of password protection and use responsible file management techniques (saving, deleting, naming, etc.).
4. Maintaining the security of School Division computers, networks and other technology

systems is of great importance and requires the cooperation and diligence of all users. Any user who identifies a security problem must notify the site administrator (principal or director) who must then notify the School Division Help Desk. The user shall not demonstrate the problem to others. Any user who attempts or causes a breach of the system security shall have his/her privileges revoked and may be subject to any additional disciplinary and/or legal action.

5. Users may not share passwords with others. Employee passwords, necessary for access to e-mail and systems that contain confidential information, must be changed at least quarterly to protect the security of the network. Periodic password changes may be enforced by the systems administrator. It is recommended that for personal security all users choose a password unique to their Albemarle County account(s).
6. Any user who desires to access School Division network resources or services on a personally owned computer or other device while on county property must obtain permission from the Office of Technology prior to accessing School Division network resources or services.

Internet Guidelines

Guidelines for Students

1. Students may access personal e-mail accounts and other forms of electronic communication with specific, written parental permission as provided on the Good Computer User Agreement, to the extent that access does not interfere with the educational process as determined by school staff. Student access to personal e-mail at school is intended for educational purposes and is not guaranteed to be private. No student may use Albemarle County Public Schools software or equipment to access any service for the purpose of conducting a purchase or participating in any other commercial activity.
2. Best practices for online safety require that students shall only use their first name and last initial unless participating in a moderated learning activity which requires full names. Home phone numbers, addresses, or other personal information shall not be revealed without parental and teacher permission.

Guidelines for Staff

1. Users may not share confidential information on students or employees with users who are not authorized to have such information. Employees are expected to use appropriate judgment and caution in communications concerning students and staff to ensure that personally identifiable information remains confidential. Employees should not use electronic mail for confidential matters or privileged communications, such as student education records, unless appropriate measures are taken to ensure confidentiality and to maintain the appropriate privilege. Employees shall adhere to all school, School Division, state and federal laws, policies and standards including the Family Education Rights and Privacy Act (FERPA).
2. Account access to systems containing confidential data will only be granted to individuals who meet the conditions of School Board Policy JO – Student Records, School Board

Policy GBL - Personal Records and other School Board policies, local, state and federal laws as applicable to the particular system. The use of such accounts must comply with all applicable laws and policies.

Guidelines for All Users

1. Users may not participate in any form of on-line mass e-mails, "chain letters" or thelike.
2. Users will follow general rules of communication etiquette.
3. Users may not create, open or forward any e-mail attachments that are known or suspected to contain viruses.

Consequences of Unacceptable Use

The use of computer resources is a privilege, not a right. Misuse of Internet access or a violation of this regulation may result in the account or the user's access privilege being denied, revoked, or suspended. Misuse may also subject the user to disciplinary action up to and including suspension, expulsion, formal reprimand, or dismissal as well as potential civil or criminal liability and prosecution. Any illegal activities will be reported to the appropriate agencies.

Internet Web Site Management Rules and Guidelines

All use of Albemarle County Schools Web server and resources shall promote educational excellence by facilitating resource sharing, innovation and communication for the enhancement of the School Division's mission.

Items published on the Albemarle County Schools Internet server shall be in accordance with applicable web site management rules and guidelines. Each web page author with rights to publish a web page shall be responsible for ensuring that pages published within the school or department's directory comply with this policy and applicable rules and guidelines. Each principal or director will assign the Web Page Coordinator duties to a staff member or staff members as appropriate. The Web Page Coordinator activities are managed by the Division Web-Services Coordinator.

Schools and departments must develop and use templates that meet the requirements for Division web pages and use navigational strategies common to those used by effective web sites. The templates should provide a common, professional "look and feel" to the Division's web site and sub-sites as appropriate. For example, the Division template would apply to all pages linked from the site home page. As another "site" begins, so may another template. These templates must be approved by the Division Web Services Coordinator.

All School or Department home pages must include the following basic, current information:

- Name of school or department
- Name of principal or director
- Address
- Phone number
- Fax number

- Link to staff directory page containing names, current assignments, and school e-mail addresses for all professional staff (staff may substitute personal e-mail address if desired)
- Link to Division's home page
- Link to Division's Internet Privacy Statement
- Name and e-mail address of Web Page Coordinator (in case there are errors)

All web pages posted to the Division's web site must:

- contain only content appropriate and relevant to the business of the school division
- provide no more than limited personal information on "About the Teacher" pages, similar to introductory remarks that would be appropriate comments at a "Back to School Night" or similar function
- promote educational excellence by facilitating resource sharing and/or innovation
- comply with school and division "Web Site Management Rules and Guidelines"
- be technically sound and work properly
- protect the rights and privacy of students and staff. School and department web sites should include a faculty/staff directory with individual names, e-mail addresses and current assignments listed. In addition, the following statement should appear on school directory pages:

Notice: E-mail communication is not guaranteed to be immediate. If you have a message that requires immediate attention or must be communicated to your child in a timely manner, please phone the school office.

- adhere to all applicable Albemarle County guidelines and School Board policies. The web site may not be used to transmit or otherwise deal with illegal, offensive, obscene, libelous language, pictures, or other similar material, any material protected by federal or state intellectual property laws; copyrighted or licensed material, for which permissions have not been obtained; private, commercial links or materials; threatening or harassing language or material; and/or pornographic material.
- include name and e-mail address of web page owner (in case there are errors)
- include link to parent page
- include link to school's or department's home page
- include date of last update
- include appropriate title header that associates the page with the school or department

Web Page Coordinators should contact the Web Services Coordinator for information regarding web page design and style.

Pages should be grammatically correct without spelling errors.

The author of the web page should review all pages for typographical errors, grammatical errors, content errors and similar problems before posting them to the web server.

Graphics should be used with a thoughtful purpose.

Graphics should provide useful, visual clues about the information provided and not distract from the purpose of the web page. Consideration should be given for the many different browsers that will be displaying the page. It is recommended that web page designs accommodate the common screen resolution of 800 X 600 pixels.

Information should be as current and accurate as possible.

In addition, all links to Internet resources should be checked regularly as appropriate and revised as necessary by the author of the web page. Any page that includes external links must include the following warning, informing the user that they are leaving www.k12albemarle.org.

WARNING! This page contains hyperlinks to one or more external web sites. Accuracy and quality of information obtained from either internal or external sources cannot be guaranteed.

Each page must include the date of last revision. Each page should include an appropriate title. Standard web site management and page creation tools must be utilized. Additional technical standards may be obtained from the Office of Technology.

Guidelines for Monitoring Student or Staff use of Technology

Albemarle County Public Schools does not routinely monitor an individual's usage of the Division's technology resources. However, as stated in the Acceptable Use Policy (School Board policy IIBE), there is no guarantee of privacy granted to the user of these resources. The normal operation and maintenance of the Division's technical infrastructure and services requires that general usage and activity is monitored, data and electronic communications are routinely backed up, and programs or other devices are employed to maintain the functionality, integrity, or security of the network infrastructure.

Albemarle County Public Schools reserves the right to monitor any activity, communication, or file creation or storage that utilizes Division resources. An individual user's account or activity may be monitored, without notice, under specific conditions, including but not limited to the following:

- 1) The user has posted the material to the Division's web server.
- 2) Routine monitoring reveals excessive traffic (file downloads/uploads, e-mail generation, etc.) or violations of the Acceptable Use Policy (School Board policy IIBE) associated with a particular account.
- 3) It is determined that the activity associated with a particular account threatens the functionality or security of the Division's technical infrastructure.
- 4) There is a legal requirement to do so.
- 5) An employee's supervisor, or a student's principal or designee requests such monitoring to ensure compliance with the Acceptable Use Policy (School Board policy IIBE). All requests must be approved by the Executive Director of Administrative Services.

Monitoring of any individual user's account must conform to written procedures established by the Assistant Director, Office of Technology.

**Grades K-2 Student Regulations
Albemarle County School Board Policy IIBE**

A Good Computer User:

1. Uses the computer with good intentions. Does not use a computer to hurt people or their work.
2. Respects the computer as our school's property. Does not break or hurt the computer.
3. Practices good computer citizenship. Does not look at, send, or print bad or mean messages or pictures.
4. Respects the environment. Does not waste paper by printing too much.
5. Respects the rights of others. Does not go into another person's folders, work, or files without permission.
6. Acts responsibly. Immediately tells an adult if his/her computer shows bad or inappropriate things.
7. Accepts responsibility. If you do something wrong, expect to be disciplined.

I agree to be a good computer user!

_____ Student Name	_____ School
_____ Student Signature	_____ Date

I expect my student to be a good computer user as defined by this document and the Albemarle County School Board Policy IIBE, *Acceptable Use of Technology*.

_____ Parent's/Legal Guardian's Signature	_____ Date
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For a full copy of the Albemarle County School Board Policy IIBE, *Acceptable Use of Technology* and accompanying regulations, please contact your child's principal.

Grades 3-5 Student Regulations
Albemarle County School Board Policy IIBE

A Good Computer User:

1. Uses the computer with good intentions. Does not use a computer to hurt people or their work.
2. Respects the computer as our school's property. Does not damage the computer or other school community property.
3. Respects the law. Does not download and/or install software, shareware, or freeware unless approved by a teacher and does not violate copyright laws.
4. Practices good computer citizenship. Does not look at, send, or print inappropriate messages or pictures.
5. Respects the environment. Does not waste paper by printing too much.
6. Respects privacy rights. Does not share or use passwords that are not his/her own without a teacher's permission.
7. Respects the rights of others. Does not go into another person's folders, work, or files without permission.
8. Acts responsibly. Tells an adult if his/her computer displays inappropriate material.
9. Accepts responsibility for proper computer use. Misuse of the computer can result in loss of computer privileges and other punishments.

I agree to be a good computer user!

Student Name	School
Student Signature	Date

I expect my student to be a good computer user as defined by this document and the Albemarle County School Board Policy IIBE, *Acceptable Use of Technology*.

Parent's/Legal Guardian's Signature	Date
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For a full copy of the Albemarle County School Board Policy IIBE, *Acceptable Use of Technology* and accompanying regulations, please contact your child's principal.

**Secondary Student Regulations
Albemarle County School Board Policy IIBE**

Secondary students are expected to:

1. Use the computer for educational purposes only.
2. Use the computer in a manner which does not harm
 - a. People
 - b. Physical equipment, hardware
 - c. Software, operating systems, folders, and files
3. Protect the privacy of self and others by
 - a. Keeping passwords secret
 - b. Respecting the privacy of other student's, teacher's, and the school system's files.
4. Access Internet sites that are appropriate and avoid sites that
 - a. Are offensive, obscene, libelous, or disruptive or contain inflammatory language or pictures
 - b. Require a fee for access (unless authorized by the school and teacher permission is granted).
5. Use computer resources responsibly by
 - a. Self-limiting use of disk space
 - b. Self-limiting use of printing paper
6. Download materials from the Internet, or copy materials from the network, only as approved by a teacher.
7. Protect the use of the computer for others by never
 - a. Knowingly loading or creating viruses
 - b. Violating copyright laws
 - c. Destroying or deleting other's files, folders or programs.
 - d. Deliberately causing harm to any computer, system, or network
8. Use e-mail responsibly by
 - a. Accessing personal e-mail, and other forms of electronic communication, during the school day for educational purposes only
 - b. Respecting the privacy of letters: letters will not be re-posted without a sender's permission
 - c. Ignoring and refusing to re-send "chain letters" and the like
 - d. Using appropriate language and subject matter
9. Protect, for personal safety reasons, your own privacy on the Internet by using first name and last initial unless the teacher-approved activity requires full names. Home telephone numbers, addresses, and other personal information may not be released unless written parental permission is granted.
10. Accept the consequences of improper use of computers that may include loss of computer privileges and other disciplinary actions.

Acceptable Use of Technology Policy Acknowledgment

I have read the Albemarle County Public Schools' Secondary Student Regulations based on Albemarle County School Board Policy IIBE and state that I fully understand and agree to abide by its requirements in all respects. Should I violate any aspect of this Policy, I specifically agree that I shall accept and be subject to all ramifications, including but not limited to the loss of access and other privileges.

Student Name

Student Signature

School

Parent's/Legal Guardian's signature

Date

If the above-named student does not have a personal e-mail account I give her/him permission to apply for a free Internet-based e-mail account from school if deemed necessary for educational purposes by school staff. Furthermore, I give the above-named student permission to access his/her personal e-mail account from school if deemed necessary for educational purposes by school staff.

Parent's/Legal Guardian's signature

Date

NOTE: Your signature on this acknowledgment is binding and establishes that you understand the terms and conditions of this policy and their significance.

For a full copy of the Albemarle County School Board Policy IIBE, *Acceptable Use of Technology* and accompanying regulations, please contact your child's principal.

**Albemarle County Public Schools
Web Publishing Permission Form**

Dear Parent/Guardian,

Each school in Albemarle County maintains school web pages that often highlight events or student accomplishments and work. Your child may be featured in some of these pictures, or may complete work our staff deems worthy of being posted on the Internet. In order to ensure the privacy and safety of all students, Albemarle County Schools requires parental consent before publishing student photographs and student work to these web sites. Albemarle County Schools will not associate names with student pictures on the web and will only associate first name with student work.

Please fill out the form below and return it to school as soon as possible.

I give permission for my child's photograph to be used on the school web pages.

Please check one: ☐ Yes ☐ No

(In order to ensure safety and privacy, Albemarle County Schools will not associate names with student pictures on the web*)

I give permission for my child's school work to be posted on the school's web pages.

Please check one: ☐ Yes ☐ No

(In order to ensure safety and still allow for proper credit and recognition, Albemarle County Schools will associate first name only with student work on the web*)

Student's Name: _____ School: _____

Teacher's Name: _____ Grade: _____

Parent's/Legal Guardian's Signature: _____ Date: _____

* In certain circumstances, when posting additional student information to the web may be appropriate (ex. sports, academic recognition, etc), special permission will be requested.

**Albemarle County Public Schools
Web Publishing Special Permission Form**

Dear Parent/Guardian, Visitor, or Staff:

To ensure the safety and privacy of all students, visitors, and staff, Albemarle County Schools does not associate names with student or other photographs on our website. First name only may be associated with student work. In some cases, it may be appropriate to step outside these guidelines to provide proper recognition in a certain area. The form below describes the special circumstance and asks for permission to publish specific student information to a school web page. This form should also be used for granting permission to publish staff or visitor photographs or other information to the school's web page.

Special Circumstance (please describe):

Student, Visitor, or Staff Information to be Published:

I give permission for this information to be published on the school's web page for this special circumstance:

Please check one: ____ Yes ____ No

Student's Name _____ School _____

Teacher's Name _____ Grade _____

Parent's/Legal Guardian's Signature _____ Date _____

If adult visitor or staff permission granted, please sign below:

Name _____ Signature _____ Date _____