



# MCPS

Middlesex County  
Public Schools

2011 - 2016

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## TECHNOLOGY PLAN

[www.mcps.k12.va.us](http://www.mcps.k12.va.us)

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## I. EXECUTIVE SUMMARY

Middlesex County, located on the Middle Peninsula in Eastern Virginia, has been, for many years, a technological leader among small rural school divisions. Many of our educators and technological leaders have designed and implemented best practices adopted within the Commonwealth of Virginia. We are proud of our educational community's commitment to technological innovation.

The shift in economic focus from rural agricultural to recreation and retirement has impacted the nature of employment for our young citizens. As a tool for better educational understanding, technology will serve to assist our students in becoming better equipped for their future.

It has been the focus of previous technology plans to develop sufficient infrastructure and understanding of technology and its best implementation. The goals of these plans have been essentially met. The steps to be taken in this plan; however, will require a fundamental shift in the nature of all instruction. The central focus of this plan is to make our educators more effective by building on what we have learned through our practice and collaboration with others. We are working to become a model of educational best practice in our region and the state. Many stakeholders have dedicated themselves to this task and are invested in the success of our mission.

MCPS goals include providing a quality infrastructure for our users. This includes a migration to a new server with active directory. It also includes providing wireless access to all staff and students. In addition, we are aiming to increase our student to computer ratio and are investigating the possibility of a one-to-one initiative for our students.

## II. PROCESS

### **State Vision:**

The vision of the Virginia Board of Education and Virginia Department of Education, in cooperation with their partners, is to create an excellent statewide system of public education that derives strength from its diversity and that ensures equality of opportunity for each student in a safe and healthy learning environment. The goal of this system is to prepare all students to be capable, responsible, and self-reliant citizens in the global society. To that end, the Department of Education will integrate innovative and authentic technologies effectively throughout all facets of the educational system to improve student academic achievement and 21st century skills and knowledge.

### **State Mission:**

The Virginia Department of Education's Division of Technology and Career Education supports school division educational improvement efforts through the use of technology. The division provides training, technical assistance, and information to agency personnel and school divisions. The 2011 - 2016 plan outlines strategic direction for agency and local educational technology planning while providing the flexibility to accommodate ongoing changes, innovations, and emerging technologies.

### **MCPS Technology Vision:**

Middlesex County Public Schools wants every student to be prepared for post-graduation college and career opportunities utilizing relevant and appropriate technology daily to expand opportunities beyond the classroom into the future.

**MCPS Technology Mission:**

Middlesex County Public Schools provide immediate and safe access to technology resources with timely support.

**Committee Members:**

Michele Kates; Coordinator of Instructional Technology

James Lane; Assistant Superintendent

Bob Fleck; Network Engineer, Special Projects

Lee Walton; School Board Member

Stan Hovey; Community Member

Mark Lomax; Community Member, Parent

Joan Gosier; Community Member, Parent

Whitney Hixenbaugh; Teacher, Middlesex Elementary School

Linden Barrick; Teacher, St. Clare Walker Middle School

Jim Hunt; Teacher, Middlesex High School

Lisha Viens; Media Specialist, St. Clare Walker Middle School

Dr. Stephen Castle; Principal, Middlesex High School

Amy Stamm; Division Director of Testing, St. Clare Walker Middle School

Kathy Ruark; Technology Department Staff , Parent

**Work and Benchmarks:**

December 2009: One-year extension plan submitted

Spring 2009 - Fall 2010: Significant Technology Department Personnel Turnover

Summer 2010: AUP Updated and Posted on Website and in Student Handbooks

August 2010: All Faculty and Staff Agreed to the New AUP

September 2010: All Students Submitted AUP Forms

November 8, 2010: Initial Planning Meeting

- Discussion of MCPS Technology Vision/Mission
- Needs Assessment Completed
- Initial Discussion of Strategies in Groups

- Groups work to solicit input from other stakeholders prior to the next meeting

November 22, 2010: 2<sup>nd</sup> Planning Meeting

- Group Reports and Finalized Strategies
- Discuss Internet Safety Program Updates
- Discuss Budgetary Implications
- Create Executive Summary
- Create Annual Evaluation Process

November 29, 2010: Whole Group Review

December 15, 2010: Whole Group Review

January 25, 2011: Whole Group Final Review

February 14, 2011: School Board Review of Technology Plan

July 1, 2011: New Technology Plan Implemented

Fall 2011/2012/2013/2014/2015: Annual Evaluation Review of Technology Plan and Updates

**Evaluation Process, Plan, and Timeline:**

MCPS will reconvene a committee of stakeholders each fall through 2015 to revise this plan annually. The revised plan will be presented to the school board during their November meeting each year. The committee will utilize documentation from the strategies listed in section III and survey data from our customer satisfaction surveys. Lastly, the committee will re-evaluate budget decisions based on the resources provided by the state and the locality to support technology in our division.

### **Summary of Needs Assessment Results:**

MCPS conducted the current needs assessment through Spring 2010. A 2010 – 2011 Customer Satisfaction survey was completed. Based on a 5-point scale, it showed the following results:

- Overall students feel ready for a 1-1 initiative. (score of 3.7)
- Teachers are concerned about student readiness for a 1-1 initiative. (score of 3.1)
- Students feel teachers are ready for a 1-1 initiative. (score of 3.7)
- Overall teachers feel there is a lack of infrastructure needed for a 1-1 initiative. (score of 2.1)
- Teachers feel that MCPS lacks the ability to support a 1-1 initiative. (score of 2.1)
- Teachers feel that when technology is available, it is used efficiently and effectively in the classroom. (score of 3.37)
- Teachers do not feel they have enough instructional technology to meet the needs of 21<sup>st</sup> Century learners. (score of 2.85)
- Teachers feel very positive about the student database solution. (score of 4.0)
- Web design needs improvement. (score of 2.83)
- Students do not feel that our schools are strong in technology. (score of 2.84)

### III. ACTIONS

#### ENVIRONMENT

**Goal 1:** Provide a safe, flexible, and effective learning environment for all students

**Objective 1.1:** Deliver appropriate and challenging curricula through face-to-face, blended, and virtual learning environments

**MCPS Strategy 1.1.1:** Expand MCPS Online Course Offerings

**Evaluation Strategy:** Analyze courses offered and utilized in the APEX and Virtual Virginia Learning Environment by setting annual targets for increased participation

**Evaluation Strategy:** Analyze pass rates for online courses to measure effectiveness

**MCPS Strategy 1.1.2:** Offer Advanced Placement and Dual Enrollment Courses in a Blended Format (online and face-to-face instruction)

**Evaluation Strategy:** Analyze AP and Dual Enrollment courses pass rates for blended format courses to measure effectiveness of online courses

**Evaluation Strategy:** Analyze AP and Dual Enrollment courses offered and utilized in the APEX and Virtual Virginia Learning Environment by setting annual targets for increased participation

**MCPS Strategy 1.1.3:** Increase the amount of web-based content and collaborative learning spaces utilized by MCPS staff and students

**Evaluation Strategy:** Document the number of web-based resources currently in use

**Evaluation Strategy:** Measure targets for utilization and participation

**Objective 1.2:** Provide the technical and human infrastructure necessary to support real, blended, and virtual learning environments.

**MCPS Strategy 1.2.1:** Provide instructional and timely technical support for teachers to maximize student learning

**Evaluation Strategy:** Evaluate repair and installation log for timely

response annually

**Evaluation Strategy:** Utilize classroom observations to evaluate the use of technology in classrooms

**Evaluation Strategy:** Document and evaluate professional development opportunities for teachers regarding technology

**Evaluation Strategy:** Evaluate staffing levels in the technology department annually to ensure that support infrastructure meets the division needs

**MCPS Strategy 1.2.2:** Implement and maintain wireless Internet access in every school with enough bandwidth to ensure the possibility that every student and staff member could be online at once

**Evaluation Strategy:** Monitor bandwidth to ensure that there is 1GB of fiber

**Evaluation Strategy:** Utilize classroom observations to evaluate the use of technology in classrooms

**Evaluation Strategy:** Document and evaluate professional development opportunities for teachers regarding technology

**MCPS Strategy 1.2.3:** Pilot and implement an age appropriate one-to-one learning environment in every school

**Evaluation Strategy:** First evaluate budgetary implications through VPSA funding to ensure sustainability

**Evaluation Strategy:** Evaluate a small pilot program to ensure that infrastructure is in place to support a larger implementation

**Evaluation Strategy:** Evaluate expansion efforts through observations to ensure instruction is delivered appropriately and timely

**Evaluation Strategy:** Evaluate professional development offerings to place a greater focus on in-class strategies for delivering instruction with every student having computer and Internet access

**MCPS Strategy 1.2.4:** Migrate servers from outdated Novell system to modern Windows Active Directory

**Evaluation Strategy:** Evaluate climate surveys

**Evaluation Strategy:** Document inventory of computers migrated  
**Objective 1.3:** Provide high-quality professional development to help educators create, maintain, and work in a variety of learner-centered environments

**MCPS Strategy 1.3.1:** Provide ongoing technology training for teachers focusing on the development of 21<sup>st</sup> century learning skills

**Evaluation Strategy:** Review professional development feedback

**MCPS Strategy 1.3.2:** Support Pilot Projects to better understand the impact of new technology in the classroom

**Evaluation Strategy:** Document and evaluate pilot projects for effectiveness through observations and surveys

## **ENGAGEMENT**

**Goal 2:** Engage students in meaningful curricular content through the purposeful and effective use of technology

**Objective 2.1:** Support innovative professional development practices that promote strategic growth for all educators and collaboration with other educators, content experts, and students

**MCPS Strategy 2.1.1:** Facilitate the development, use, and delivery of innovative professional development that promotes collaboration

**Evaluation Strategy:** Conduct annual needs assessments of all staff to determine professional development for teaching the 21st century learner

**Evaluation Strategy:** Collect feedback from training, conferences, and workshops from all staff

**Evaluation Strategy:** Provide trainings that offer opportunities to collaborate, learn, and grow professionally

**MCPS Strategy 2.1.2:** Facilitate the development and delivery of professional development opportunities that focus on effective technology use in specific core curricular areas

**Evaluation Strategy:** Describe professional development opportunities focusing on 21st century technology skills to promote student engagement in the core curricular areas

**Evaluation Strategy:** Conduct needs assessments to determine and design professional development opportunities in core content areas

**Objective 2.2:** Actualize the ability of technology to individualize learning and provide equitable opportunities for all learners

**MCPS Strategy 2.2.1:** Provide reasonable access to Internet-connected devices that offer students the flexibility to learn anytime, anywhere

**Evaluation Strategy:** Maintain fourteen COWS (computers on wheels), eleven labs and numerous desktop computers in media centers and classrooms currently available for student use

**Evaluation Strategy:** Ensure all schools have wireless connectivity

**MCPS Strategy 2.2.2:** Identify and disseminate information and resources to assist schools in evaluating the interactive and universal design features of hardware, software, and Internet resources

**Evaluation Strategy:** Analyze and identify the capabilities of current and emerging hardware, software, and Internet resources

**Evaluation Strategy:** Describe the methods of dissemination of information and resources throughout the district

**Objective 2.3:** Employ progressive high-quality Internet safety programs throughout the division

**MCPS Strategy 2.3.1:** Determine best practices and resources to promote the integration of Internet safety and security throughout the curricula

**Evaluation Strategy:** Maintain filtering and proxies to ensure safe Internet access

**Evaluation Strategy:** Teach students Internet safety in addition to how to evaluate websites for their reliability

**Evaluation Strategy:** Document relevant Internet resources through the on-line curriculum management system

**MCPS Strategy 2.3.2:** Monitor the implementation of Internet safety policies

and programs and provide technical assistance and support to ensure that schools have effective programs and policies

**Evaluation Strategy:** Communicate that personal devices that do not belong to MCPS are not to be connected to MCPS without permission from the Technology Department and that these devices are subject to the MCPS filter

## **APPLICATION**

**Goal 3:** Afford students with opportunities to apply technology effectively to gain knowledge, develop skills, and create and distribute artifacts that reflect their understandings

**Objective 3.1:** Provide and support professional development that increases the capacity of teachers to design and facilitate meaningful learning experiences, thereby encouraging students to create, problem-solve, communicate, collaborate, and use real-world skills by applying technology purposefully

**MCPS Strategy 3.1.1:** Utilize the professional learning community framework to allow teachers time to collaborate in creating lessons focused on creativity, collaboration, and problem solving through technology

**Evaluation Strategy:** Document lesson creation on the division-website

**MCPS Strategy 3.1.2:** Promote the safe and responsible use of social media

**Evaluation Strategy:** Document MCPS efforts to promote responsible use of social media

**Objective 3.2:** Ensure that students, teachers, and administrators are ICT (Information and Communication Technology) literate

**MCPS Strategy 3.2.1:** Provide technical assistance and resources to schools and teachers to be utilized in lessons and the daily school activities

**Evaluation Strategy:** Describe and document efforts to promote ICT literacy

**Objective 3.3:** Implement technology-based formative assessments that

produce further growth in content knowledge and skills development

**MCPS Strategy 3.3.1:** Utilize interactive achievement for formative (classroom) and summative (benchmark) assessment to provide timely access to data regarding students' instructional needs

**Evaluation Strategy:** Ensure principals report data from IA assessments quarterly

**MCPS Strategy 3.1.2:** Encourage teachers to utilize classroom response systems to evaluate student understanding and engagement

**Evaluation Strategy:** Inventory available tools and document implementation

## **TOOLS**

**Goal 4:** Provide students with access to authentic and appropriate tools to gain knowledge, develop skills, extend capabilities, and create and disseminate artifacts that demonstrate their understandings

**Objective 4.1:** Provide resources and support to ensure that every student has access to a personal computing device

**MCPS Strategy 4.1.1:** Provide tools that extend students' capabilities, can be customized to meet individual needs and preferences, and support learning

**Evaluation Strategy:** Describe the equitable access to personal computing devices

**Evaluation Strategy:** Document standardized tools and resources that support student learning

**Evaluation Strategy:** Describe the alignment of resources and tools with Middlesex County Public Schools curriculum

**MCPS Strategy 4.1.2:** Provide opportunities for students to learn and apply Information and Communication Technology (ICT) skills in local and community settings using a variety of authentic tools

**Evaluation Strategy:** Describe the applications and tools that align

and support the Middlesex County Public Schools curriculum

**Evaluation Strategy:** Document that technology equipment utilizes a standardized refresh rate on an equitable basis

**Evaluation Strategy:** Assess student mastery of ICT skills by the 8th grade

**Evaluation Strategy:** Monitor and assess the integration of technology into instruction across all grade levels

**Objective 4.2:** Provide technical and pedagogical support to ensure that students, teachers, and administrators can effectively access and use technology tools

**MCPS Strategy 4.2.1:** Provide and support high-quality professional development to assist educators in evaluating and integrating technology tools in ways that foster effective student use

**Evaluation Strategy:** Document professional development opportunities that assist educators in integrating technology tools available to staff

**Evaluation Strategy:** Describe the types of professional development offered including online, face-to-face and blended courses

**Evaluation Strategy:** Describe the methods used to promote awareness of technology tools

**Evaluation Strategy:** Document staff attendance at professional development opportunities

**MCPS Strategy 4.2.2:** Provide ongoing support to assist teachers in effectively integrating a variety of technology-based tools into teaching and learning

**Evaluation Strategy:** Describe the district's role in providing ongoing and just-in-time support through a variety of delivery methods

**Evaluation Strategy:** Document training of instructional and curriculum leaders on integration strategies for instruction

**Evaluation Strategy:** Describe the process for modeling and co-

teaching for classroom teachers in the area of technology integration within the curriculum

**MCPS Strategy 4.2.3:** Provide timely and effective technical support to ensure that all tools and the network that supports them are installed and maintained properly

**Evaluation Strategy:** Document training and support for technology hardware and infrastructure

**Evaluation Strategy:** Monitor and assess technology work order system for effective installation and maintenance

**MCPS Strategy 4.2.4:** Create a new website that links teachers to a wide array of resources to support the curriculum

**Evaluation Strategy:** Implement new website prior to July 2011

**Evaluation Strategy:** Evaluate the effectiveness annually through customer satisfaction surveys

**Objective 4.3:** Identify and disseminate information and resources that assist educators in selecting authentic and appropriate tools for all grade levels and curricular areas

**MCPS Strategy 4.3.1:** Identify and disseminate information about new and emerging technologies

**Evaluation Strategy:** Describe the processes for disseminating information about new and emerging technologies

**MCPS Strategy 4.3.2:** Design and implement pilot projects to evaluate a variety of personal computing devices

**Evaluation Strategy:** Document Middlesex County Public Schools efforts in supporting pilot projects that utilize new and emerging technologies

**Evaluation Strategy:** Describe the process for implementing projects

**Evaluation Strategy:** Evaluate projects that incorporate personal computing devices

## RESULTS

**Goal 5:** Use technology to support a culture of data-driven decision-making that relies upon data to evaluate and improve teaching and learning

**Objective 5.1:** Use data to inform and adjust technical, pedagogical, and financial support.

**MCPS Strategy 5.1.1:** Implement state and local data systems to advise school and division improvement and strategic plans, curriculum decisions, and financial decisions

**Evaluation Strategy:** Analyze Customer Satisfaction Surveys

**Evaluation Strategy:** Analyze Benchmark and AYP Data Results

**Evaluation Strategy:** Conduct financial reviews

**Objective 5.2:** Provide support to help teachers disaggregate, interpret, and use data to plan, improve, and differentiate instruction

**MCPS Strategy 5.2.1:** Provide training to administrators and teachers focusing on improving professional learning communities that utilize data to make decisions and how to disaggregate data

**Evaluation Strategy:** Document principal, faculty, and team meeting minutes and ensure that agendas include data analysis

**Evaluation Strategy:** Ensure principals meet quarterly with each teacher about his or her data

**Objective 5.3:** Promote the use of technology to inform the design and implementation of next- generation standardized assessments

**MCPS Strategy 5.3.1:** In coordination with DOE when appropriate or not, to pilot and create a variety of assessment formats allowing students to demonstrate understanding in multiple ways using technology

**Evaluation Strategy:** Document and evaluate assessment opportunities

**Evaluation Strategy:** Document professional development and resources provided to assist teachers in creating these assessments

**Evaluation Strategy:** Document student achievement through a variety of assessments

## IV. APPENDIX 1 Timetable and Budget

### **Technology Budget 2011-2012**

Salaries and Benefits	\$183,181.00
Purchased Services	\$39,595.00
Telecommunications	\$20,450.00
Travel	\$3,200.00
Materials and Supplies	\$21,500.00
Instructional Supplies and Software	\$77,902.00
Capital Outlay	\$32,400.00
VA Public School Authority Grant	\$130,335.00
<b>Total Budget 2011-2012</b>	<b>\$508,563.00</b>

## V. APPENDIX 2

### MCPS Acceptable Use Policy (Adopted 2010)

The School Board provides a computer system, including the Internet, to promote educational excellence by facilitating resource sharing, innovation and communication. The term computer system includes hardware, software, data, communication lines and devices, terminals, printers, CD-ROM devices, tape drives, servers, mainframe and personal computers, the Internet and other internal or external networks.

All use of the Division's computer system must be (1) in support of education and/or research, or (2) for legitimate school business. Use of the computer system is a privilege, not a right. Any communication or material used on the computer system, including electronic mail or other files deleted from a user's account, may be monitored or read by school officials.

The Division Superintendent shall establish administrative procedures, for the School Board's approval, containing the appropriate uses, ethics and protocol for the computer system. The procedures shall include:

- (1) a prohibition against use by division employees and students of the division's computer equipment and communications services for sending, receiving, viewing or downloading illegal material via the Internet;
- (2) provisions, including the selection and operation of a technology protection measure for the division's computers having Internet access to filter or block Internet access through such computers, that seek to prevent access to (a) child pornography as set out in Va. Code § 18.2-374.1:1 or as defined in 18 U.S.C. § 2256; (b) obscenity as defined by Va. Code § 18.2-372 or 18 U.S.C. § 1460; and (c) material that the school division deems to be harmful to juveniles as defined in Va. Code § 18.2-390, material that is harmful to minors as defined in 47 U.S.C. § 254(h)(7)(G), and material that is otherwise inappropriate for minors;
- (3) provisions establishing that the technology protection measure is enforced during any use of the Division's computers by minors;
- (4) provisions establishing that the online activities of minors will be

monitored; (5) provisions designed to educate students about appropriate online behavior, including interacting with other individuals on social networking websites and in chat rooms and cyber bullying awareness and response; (6) provisions designed to prevent unauthorized online access by minors, including “hacking” and other unlawful activities by minors online; (7) provisions prohibiting the unauthorized disclosure, use, and dissemination of personal information regarding minors; and (8) a component of Internet safety for students that is integrated in the division’s Instructional program.

Use of the School Division’s computer system shall be consistent with the educational or instructional mission or administrative function of the Division as well as the varied instructional needs, learning styles, abilities and developmental levels of students. The Division’s computer system is not a public forum.

Each teacher, administrator, student and parent/guardian of each student shall sign the Acceptable Computer System Use Agreement, GAB-E1/IIBEA-E2, before using the Division’s computer system. The failure of any student, teacher, or administrator to follow the terms of the Agreement, this policy, or accompanying regulation may result in loss of computer system privileges, disciplinary action, and/or appropriate legal action.

The School Board is not responsible for any information that may be lost, damaged, or unavailable when using the computer system or for any information retrieved via the Internet. Furthermore, the School Board will not be responsible for any unauthorized charges or fees resulting from access to the computer system.

Adopted: October 22, 2001

Amended: September 20, 2004

August 14, 2006

May 14, 2007

July 12, 2010

The school board will review, amend if necessary, and approve this policy

every two years.

Legal Refs:

Cross Refs.:

18 U.S.C. §§ 1460, 2256. 47 U.S.C. § 254.

Code of Virginia, 1950, as amended, §§ 18.2-372, 18.2-374.1:1, 18.2-390, 22.1-70.2, and 22.1-78.

GCPD Professional Staff Members: Contract Status and Discipline GDPD

Support Staff Members: Contract Status and Discipline JFC Student Conduct

JFC-R Standards of Student Conduct

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MIDDLESEX COUNTY PUBLIC SCHOOLS

## VI. APPENDIX 3

### A. Summary of Internet Safety Program

The Internet Safety Plan was reviewed by the Technology Plan Committee. It was determined that the plan needed to be updated and the implementation process was reviewed. Based on this evaluation, a new Internet Safety Committee was developed.

Middlesex County Public Schools will provide resources for schools and teachers to ensure that Internet safety is taught in the curriculum. Furthermore, the MCPS technology infrastructure will be built and maintained in manner that provides a safe work and school environment. We will conduct meetings and prepare information for parents to help them teach about Internet safety at home.

Internet Safety Training will be provided for students, administrators, parents, and teachers. MCPS will provide this training through a variety of methods including face-to-face instructions, online courses, online resources, and community meetings. Media specialists, counselors, administrators, School Resource Officers, and the Technology Department will provide training.

## VIII. APPENDIX 4

### Computer Technology Standards of Learning For Virginia's Public Schools: June 22, 2005

#### Board of Education Commonwealth of Virginia Computer/Technology Standards of Learning

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##### Introduction

###### Technology Literate

...to possess technology skills that support learning, personal productivity, decision making, and daily life.

Six-Year Educational Technology Plan for Virginia, 2003-2009

The Computer/Technology Standards of Learning identify and define the progressive development of essential knowledge and skills necessary for students to access, evaluate, use and create information using technology. They provide a framework for technology literacy and demonstrate a progression from physical manipulation skills for the use of technology, to intellectual skills necessary for information use, to skills needed for working responsibly and productively within groups. Computer/technology proficiency is not an end in itself, but lays the foundation for continuous learning. The focus is on learning using technology rather than learning about technology.

To become technologically proficient, the student must develop the skills through integrated activities in all content areas K-12, rather than through one specific course. These skills should be introduced and refined collaboratively by all K-12 teachers as an integral part of the learning process. Teachers can use these standards as guidelines for planning technology-based activities in which students achieve success in learning, communication, and prepare them to meet the challenges of today's technology-rich world of work.

# Computer/Technology Standards of Learning

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Grades K-2

## Basic Operations and Concepts

C/T K-2.1 The student will demonstrate knowledge of the nature and operation of technology systems.

- Identify the computer as a machine that helps people at school, work, and play.
- Use technology to demonstrate the ability to perform a variety of tasks; among them turning on and off a computer, starting and closing programs, saving work, creating folders, using pull-down menus, closing windows, dragging objects, and responding to commands.

C/T K-2.2 The student will demonstrate proficiency in the use of technology.

- Demonstrate the use of mouse, keyboard, printer, multimedia devices, and earphones.
- Use multimedia resources such as interactive books and software with graphical interfaces.

## Social and Ethical Issues

C/T K-2.3 The student will practice responsible use of technology systems, information, and software.

- Know the school's rules for using computers.
- Understand the importance of protecting personal information or passwords.
- Understand the basic principles of the ownership of ideas.

C/T K-2.4 The student will use technology responsibly.

- Demonstrate respect for the rights of others while using computers.
- Understand the responsible use of equipment and resources.

## Technology Research Tools

C/T K-2.5 The student will use technology to locate, evaluate, and collect information from a variety of sources.

- Identify information in various formats.
- Identify available sources of information.

### Problem-solving and Decision-making Tools

C/T K-2.6 The student will use technology resources for solving problems and making informed decisions.

- Recognize that technology can be used to solve problems and make informed decisions.
- Identify and select technologies to address problems.

### Technology Communication Tools

C/T K-2.7 The student will use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

- Identify the best tool to communicate information.
- Use technology tools for individual writing, communication, and publishing activities.
- Demonstrate the ability to create, save, retrieve, and print document.

## Basic Operations and Concepts

C/T 3-5.1 The student will demonstrate knowledge of the nature and operation of technology systems.

- Discuss common uses of computers in their daily life and the advantages and disadvantages those uses provide.
- Communicate about basic technology components with appropriate terminology.

C/T 3-5.2 The student will demonstrate proficiency in the use of technology.

- Use skills and procedures needed to operate various technologies such as scanners, digital cameras and hand-held computers.
- Identify basic software applications such as word processing, databases, and spreadsheets.

### Social and Ethical Issues

C/T 3-5.3 The student will demonstrate knowledge of ethical, cultural, and societal issues related to technology.

- Identify how technology has changed society in areas such as communications, transportation, and the economy.
- Discuss ethical behaviors when using information and technology.

C/T 3-5.4 The student will practice responsible use of technology systems, information, and software.

- Understand the need for the school division's acceptable use policy.
- Discuss the rationale of fair use and copyright regulations.
- Follow rules for personal safety when using the Internet.

- C/T 3-5.5 The student will demonstrate knowledge of technologies that support collaboration, personal pursuits, and productivity.
- Work collaboratively when using technology.
  - Practice and communicate respect for people, equipment, and resources.
  - Understand how technology expands opportunities for learning.

#### Technology Research Tools

- C/T 3-5.6 The student will use technology to locate, evaluate, and collect information from a variety of sources.
- Collect information from a variety of sources.
  - Evaluate the accuracy of electronic information sources.
  - Enter data into databases and spreadsheets.

#### Problem-solving and Decision-making Tools

- C/T 3-5.7 The student will use technology resources for solving problems and making informed decisions.
- Determine when technology tools are appropriate to solve a problem and make a decision.
  - Select resources to solve problems and make informed decisions.

#### Technology Communication Tools

- C/T 3-5.8 The student will use a variety of media and formats to communicate information and ideas effectively to multiple audiences.
- Produce documents demonstrating the ability to edit, reformat, and integrate various software tools.
  - Use technology tools for individual and collaborative writing, communication, and publishing activities.
  - Use telecommunication tools to communicate and share information with others.

Grades 6-8

### Basic Operations and Concepts

- C/T 6-8.1 The student will demonstrate knowledge of the nature and operation of technology systems.
- Describe how technology impacts learning.
  - Explore how software and hardware are developed to respond to the changing needs of technology.
  - Describe compatibility issues, between various types of technology.

- C/T6-8.2 The student will demonstrate proficiency in the use of technology.
- Understand that hardware and software have different operating systems that may affect their use.
  - Use self-help features such as online tutorials and manuals to learn to use hardware and software.

### Social and Ethical Issues

- C/T 6-8.3 The student will demonstrate knowledge of ethical, cultural, and societal issues related to technology.
- Demonstrate knowledge of current changes in information technologies.
  - Explain the need for laws and policies to govern technology.
  - Explore career opportunities in technology related careers.
- C/T 6-8.4 The student will practice responsible use of technology systems, information, and software.
- Demonstrate the correct use of fair use and copyright regulations.
  - Demonstrate compliance with the school division's Acceptable Use Policy and other legal guidelines.
- C/T 6-8.5 The student will demonstrate knowledge of technologies that support collaboration, personal pursuits, and productivity.
- Work collaboratively and/or independently when using technology.
  - Practice preventative maintenance of equipment, resources, and facilities.
  - Explore the potential of the Internet as a means of personal learning and the respectful exchange of ideas and products.

### Technology Research Tools

- C/T 6-8.6 The student will use technology to locate, evaluate, and collect information from a variety of sources.
- Use databases and spreadsheets to evaluate information.
  - Use technology resources such as calculators and data collection probes for gathering information.
  - Use Internet and other electronic resources to locate information in real time.
- C/T 6-8.7 The student will evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.
- Use search strategies to retrieve information.

- Evaluate the accuracy, relevance, and appropriateness of electronic information sources.

#### Problem-solving and Decision-making Tools

C/T 6-8.8 The student will use technology resources for solving problems and making informed decisions.

- Employ technology in the development of strategies for solving problems.
- Use a variety of technologies to identify and provide possible solutions to real-world problems.
- Use content-specific tools, software, and simulations such as environmental probes, graphic calculators, exploratory environments, and web tools.
- Participate in collaborative problem-solving activities.
- Select and use appropriate tools and technology resources to accomplish a variety of tasks.

#### Technology Communication Tools

C/T 6-8.9 The student will use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

- Choose the appropriate tool, format, and style to communicate information.
- Independently use technology tools to create and communicate for individual and/or collaborative projects.
- Produce documents demonstrating the ability to edit, reformat, and integrate various software tools.

### Basic Operations and Concepts

C/T 9-12.1 The student will demonstrate knowledge of the nature and operation of technology systems.

- Discuss the inherent advantages and limitations of technology.
- Define the relationship between infrastructure, electronic resources, and connectivity.
- Identify and describe the impact of new and emerging technologies and their applications.

C/T 9-12.2 The student will demonstrate proficiency in the use of technology.

- Identify and resolve hardware and software compatibility issues.
- Develop and communicate strategies for solving routine hardware and software problems.

#### Social and Ethical Issues

C/T 9-12.3 The student will demonstrate knowledge of ethical, cultural, and societal issues related to technology.

- Assess the potential of information and technology to address personal and workplace needs.
- Demonstrate knowledge of electronic crimes such as viruses, pirating, and computer hacking.
- Explore and participate in online communities, and online learning opportunities.
- Identify the role that technology will play in future career opportunities.

C/T 9-12.4 The student will practice responsible use of technology systems, information, and software.

- Adhere to fair use and copyright guidelines.
- Adhere to the school division's Acceptable Use Policy as well as other state and federal laws.
- Model respect for intellectual property.

C/T 9-12.5 The student will demonstrate knowledge of technologies that support collaboration, personal pursuits, and productivity.

- Respectfully collaborate with peers, experts, and others to contribute to an electronic community of learning.
- Model responsible use and respect for equipment, resources, and facilities.

#### Technology Research Tools

C/T 9-12.6 The student will use technology to locate, evaluate, and collect information from a variety of sources.

- Integrate databases, spreadsheets, charts, and tables to create reports.
- Use available technological tools to expand and enhance understanding of ideas and concepts.

C/T 9-12.7 The student will evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

- Analyze and draw conclusions about the comprehensiveness and bias of electronic information sources.
- Design and implement a variety of search strategies to retrieve electronic information.

#### Problem-solving and Decision-making Tools

C/T 9-12.8 The student will use technology resources for solving problems and making informed decisions.

- Investigate and apply expert systems, intelligent agents, and simulations in real-world situations.

- Select and apply technology tools for information analysis, problem-solving, and decision-making.
- Use technology resources such as educational software, simulations, and models for problem-solving, and independent learning.
- Produce and disseminate information through collaborative problem-solving activities.

#### Technology Communication Tools

C/T 9-12.9 The student will use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

- Determine the most effective tool, format, and style to communicate to specific audiences.
- Use technology-based options, including distance and distributed education, to collaborate, research, publish, and communicate.
- Practice self-directed use of advanced technology tools for communicating with specific audiences.