Instructional Technology

White Mountains Regional School District

May 2011

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District Technology Statement

The mission of The White Mountains Regional School District is to *prepare all students to become lifelong learners in a safe environment with high expectations so that they will become responsible, productive citizens in an ever-changing society*. It is our responsibility not only to foster the *independent* acquisition, use, and communication of information, but in today's society, the *interdependence* of such abilities as students interact and problem solve with others. These are not new concepts but tried and true structures of solid instruction and necessary for positive and successful life choices. Technology skills education, its applications, and technology integration are critical components of reaching this goal. However, we need to be very clear and consistent about how we, as a district, define these components and use them in our instructional program.

The District Technology Curriculum (see Appendix A) is comprised of the seven components as recommended by the International Society for Technology in Education's National Educational Technology Standards (NETS)(See Appendix F). The seven components are best categorized into three areas of technology education: Technology Skills, Technology Applications, and Technology Integration. Our district has identified a list of skills, concepts, and applications that we feel are necessary for our students to know and be able to do in each of the component areas.

The responsibility of delivering this curricular content has been divided among four areas: Media Lab Assistants, Library Staff, Classroom Teachers, and Technology Education. The responsibilities of each are detailed in the following sections

Technology Skills Education ***(Student Focused)***

Technology Skills Education is the ***student*** learning well articulated grade specific technology skills as outlined in four of the seven components of the District Technology Curriculum (see Appendix A). The responsibility of delivering the four components has been divided among the following staff and outlined below:

Staff Responsible	Components	Grades
Media Lab Assistant *(see Appendix B)*	Technology Skills Keyboarding Skills	K-6
Tech Ed. Teacher *(see Appendix D)*	Technology Skills	7-8
Library Staff *(see Appendix C)*	Digital Citizenship Research & Information Fluency	K-8

Specific skill instruction and evaluation will be delivered to grades K-6 students in the library/media centers by library/media personnel during the Unified Arts schedule. This will

provide students with the skills needed for application opportunities in the classroom. Seventh and eighth grade skill sets will be taught and evaluated by the Technology Education Teacher as a component of Technology Education class and will be a daily core class.

Technology Skills Application *(Student/Lesson Focused)*

Technology skills application is the applied knowledge of the grade level technology skills, by students, within the classroom *to enhance learning opportunities and content area lessons.* It is expected that student-based opportunities are provided and are guided by the classroom teacher as part of a lesson or assessment. It is important to note that the application of technology skills *must* be focused around mastery of the curriculum and *always begins with a detailed lesson.* Technology driven projects/activities with an internal link to core academic areas are appropriate applications. Evidence of skills application, whether through a number of small activities, lessons, or assignments throughout the year or an all-encompassing project, should be documented in student folders, preferably on the district server.

The District Technology Curriculum addresses the three NETS based components which focus primarily on the applications of technology in the classroom (see Appendix E). These three components are the responsibility of the Classroom Teacher and Technology Education Teacher and are outlined below.

Staff Responsible	Components	Grades
Classroom Teacher	Creativity and Innovation Communication and Collaboration Critical Thinking, Problem Solving, and Decision Making	K-12

In order for our students to adequately demonstrate the concepts above, a thoughtful and deliberate approach is required of the teacher. As outlined in the National Educational Technology Standards for Teachers (NETS-T), effective teachers:

- Facilitate and Inspire Student Learning and Creativity
- Design and Develop Digital-Age Learning Experiences and Assessments
- Model Digital-Age Work and Learning
- Promote and Model Digital Citizenship and Responsibility
- Engage in Professional Growth and Leadership

The application of technology skills is a K-12 expectation. It is expected that course opportunities for technology application exist for students at the high school level just as it is expected at the elementary/middle school level. Additional information and resources about NETS (Appendix F) can be found at www.iste.org.

Technology Integration *(Teacher Focused)*

In its most basic of forms, technology integration is ***teacher*** use of technology to improve, or make possible, an already planned lesson designed to advance mastery of the curriculum; it is a delivery method that is teacher initiated, focused, and implemented. It also, to the extent possible, helps students to develop the skills of critical thinking, problem solving, collaboration, and communication and begins with a pre-existing lesson. For example:

> Providing on-line resources to high school students that allow them to revisit concepts taught in the classroom.
>
> The delivery of content through PowerPoint, educational websites, and educational videos, to name only a few.
>
> The use of an on-line collaborative spreadsheet used in math instruction allowing all students to input data in the same place at the same time and from which, analyze information and make decisions.
>
> The use of moodle for collaborative book talks that allow students to respond to a teacher's prompt as well as interact with their peers to engage in literary discussion outside of the classroom.

While it is important to recognize the various skill and comfort levels of working with technology integration in our district and provide opportunities for teachers at all levels to take a risk, our primary goal right now is to ensure a common language.

There are so many interpretations of technology integration. The following quote reflects the direction of our district:

> "Curriculum integration with the use of technology involves the infusion of technology as a tool to enhance the learning in a content area or multidisciplinary setting... The technology should become an integral part of how the classroom functions — as accessible as all other classroom tools. The focus in each lesson or unit is the curriculum outcome, not the technology." (Chapter 7: Technology Integration, U.S. Department of Education, December 9, 2008)

This statement reflects the direction of teaching and learning in our district. While there are a number of steps to achieve this vision the first step is to establish and support a common language about what we mean about technology integration. Increased levels of integration will

develop more naturally and become more purposeful and deliberate as the district moves forward with future professional development trainings in the 2011-2012 school year.

Grade Span Snapshots:

K-6 Snapshot

Technology Skills Education

- **Technology Operations** will be taught by **Media Assistant** during **Unified** classtime
- **Digital Citizenship, Research and Information Fluency,** and identified **Technology Operations** will be taught by **Library Staff** during **Unified** classtime

Technology Skills Application

- **Classroom Teachers** will provide opportunities for students to apply technology skills to promote components of **Creativity and Innovation, Communication and Collaboration, and Critical Thinking, Problem Solving, and Decision Making.**

Technology Integration

- **Classroom Teachers** will enhance content area lessons through technological means as deemed necessary to advance mastery of the curriculum.

7-8 Snapshot

Technology Skills Education

- Identified **Technology Operations** will be taught by **Technology Education Teacher** as part of a daily core content area class.
- **Digital Citizenship, Research and Information Fluency,** and identified **Technology Operations** will be taught by **Library Staff** during **Unified** classtime

Technology Skills Application

- **Classroom Teachers** will provide opportunities for students to apply technology skills to promote components of **Creativity and Innovation, Communication and Collaboration, and Critical Thinking, Problem Solving, and Decision Making.**
- **Technology Education Teacher** will provide broad content based opportunities allowing students to identify how technology skills and tools can assist them in everyday living and learning. These application opportunities will take place in daily core content area class and will extend the application and uses provided in other content area classes.

Technology Integration

- **Classroom Teachers** will enhance content area lessons through technological means as deemed necessary to advance mastery of the curriculum.

9-12 Snapshot

Though a clearly articulated Technology Curriculum does not yet exist at the high school level, we expect the delivery of a well-articulated curriculum at the K-8 level will provide students with the technology skills necessary for high school level course work. It is expected that course opportunities for technology application continue to exist for students at the high school level. The National Educational Technology Standards for Students and Teachers (NETS-S/NETS-T) provide a basis for providing these opportunities.

The NETS are not grade specific documents. They have formed the basis of our K-8 Technology Curriculum and can be well extended to guide high school applications and expectations. More time will be devoted to expanding our Technology Curriculum to include the high school over the 2011-2012 school year.

Technology Skills Application

- **Content-Area Teachers** will provide opportunities for students to apply technology skills to promote components of **Creativity and Innovation, Communication and Collaboration, and Critical Thinking, Problem Solving, and Decision Making** as outlined in the National Educational Technology Standards for Students (NETS-S)
- **Content-Area Teachers** will use the National Educational Technology Standards for Teachers **(NETS-T)** as a guide for modeling appropriate technology application in content area instruction

Technology Integration

- **Classroom Teachers** will enhance content area lessons through technological means as deemed necessary to advance mastery of the curriculum.

Requesting Assistance

Regardless of your comfort level and knowledge base with technology, it is recognized that staff will need assistance with the teaching of technology skill, technology application, and/or technology integration. Support for skills application and integration may be requested through the Technology Support Request (see Appendix G). This form can be found on the district website in the Technology Department under Technology Integration. The form will prompt the staff member for a description of the lesson in need of support or enhancement, the type of assistance needed, and available non-instructional times to meet.

The intent of this new process is to allow for a consistency of skills as our students move through our educational system. Technology plays an important role in today's youth. It is critical that we provide *all* of our students with the skills they need to enter and adapt to a technological world; not merely for social interaction but for skillful decision-making, communication, collaboration, and success.

Appendix A:

District Technology Curriculum

The K-8 Scope and Sequence of Technology Skills and Applications provides a list of those technology skills and concepts deemed important for White Mountains Regional School District students to know and be able to do. Skills and concepts are categorized as recommended by the International Society for Technology in Education's National Educational Technology Standards. Component headings, with the exception of Keyboarding Skills, are those used in the NETS for Students which include: Technology Operations, Digital Citizenship, Creativity and Innovation, Communication and Collaboration, Research and Information Fluency, and Critical Thinking, Problem Solving, and Decision Making. Keyboarding Skills has been added as a recognized need in our district.

TECHNOLOGY OPERATIONS AND CONCEPTS	K	1	2	3	4	5	6	7	8
Identifies parts of the computer such as the monitor, keyboard, and mouse	M								
Operates the mouse	M								
Operates arrow keys	M								
Uses "single-click", "double-click", and "click-and-drag" functions of mouse	M								
Opens and closes programs	M								
Produces and edits grade appropriate documents	M	M	M	M	M	M	M	M	M
Saves documents (to single location)	EXP	R	R	M					
Saves documents (to multiple locations)				EXP	R	R	M		
Prints simple documents with adult permission	EXP	R	M	M					
Uses Print Preview before printing documents				EXP	R	R	M		
Logs on and off the computer		M	M						
Locates and opens a saved file (from a single location)		M	M	M					
Changes font, color, and size		M							
Toggles between two programs		EXP	M						
Creates and names a folder		EXP	M						
Saves pictures from internet into a folder for later use		EXP	M						
Resizes pictures		EXP	M						
Inserts pictures/clip art into a document			M						
Adds and resizes text boxes			M						
Uses tool icons such as bold, italicize, and underline			EXP	M					
Uses tab key to indent			EXP	R	M				
Utilizes cut, copy, and paste features			EXP	R	R	M			
Uses spell check			EXP	R	R	M			
Accesses information from My Computer window (CD ROM, DVD, thumb drive, scanner, camera)			EXP	R	R	M			
Accesses and uses an existing spreadsheet and can explain its purpose				M					
Opens, closes, and restores Windows				EXP	M				
Uses the tool icons such as paragraph indent and justification				EXP	R	M			
Inserts hyperlinks into documents				EXP	R	R	M		
Uses and describes functions of basic peripheral devices such as a printer and scanner					M				
Uses Undo icon					M				
Prints landscape and portrait modes					M				
Utilizes print options					EXP	R	R	R	M
Locates and opens a saved file (from multiple locations)					R	M			
Creates a table from word processing software					EXP	M			
Creates and formats columns					EXP	M			
Creates simple spreadsheets to collect age-appropriate data					EXP	M			
Inserts and formats bullets					EXP	M			
Connects peripheral devices (Flip video, digital audio recorder, digital camera, web cam, etc.)					EXP	R	M	M	
Utilizes the Help feature						EXP	M	M	
Changes margin formats						EXP	M		

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Uses Track Changes for editing purposes						EXP	M		
Explains the function of a database							M		
Troubleshoots basic technical problems							EXP	M	
Integrates two or more programs							EXP	M	
Produces a simple database							EXP	M	
Uses formulas within an Excel spreadsheet							EXP	M	
Changes document views							EXP	M	
Uses Window menu to compare and rearrange document viewing formats							EXP	M	
Moves and copies files from one location to another							EXP	R	M
Uses components of Google Docs							EXP	R	M
Accesses district technology resource page to choose appropriate application(s)/tool(s) for academic purposes								R	M
Changes toolbars								M	
Designs web pages								EXP	M
Identifies technology tools and explains their uses for academic purposes								EXP	M
Uses video editing tools								EXP	M
Recognizes and explains the function of different file types (mp3, mp4, wav, jpeg, avi, etc.)								EXP	M
Defines and explains in age-appropriate terms:									M
Networking									M
LAN/WAN									M
Internet									M
Domain									M
WiFi									M
Routers									M
Switches									M
Firewall									M
IPV 4/IPV 6									M
Web 2.0									M
3G/4G									M
Cloud computing									M
Uses the thesaurus					EXP	R	M	IA	IA
Inserts header and footer								EXP	IA
Inserts page numbers								EXP	IA
DIGITAL CITIZENSHIP	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Takes proper care of technology hardware and software	EXP	R	R	R	R	R	M	M	IA
Understands that permission is needed for Internet use	EXP	R	R	R	R	R	M	M	IA
Understands that permisssion is needed for publication of his/her work and /or picture on the Internet	EXP	R	R	R	R	R	M	M	IA
Works cooperatively and collaboratively with peers, teachers, and others when using technology	EXP	R	R	R	R	R	M	M	IA
Understands that you do not communicate with strangers on the Internet	EXP	R	R	R	R	M	M	M	IA
Understands and complies with the District Acceptable Use Guidelines		EXP	R	R	R	M	M	M	IA

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Understands the importance of not providing personal information on web spaces (ex. Full name, birthdate, address, school, etc.)			EXP	R	R	R	M	M	IA
Demonstrates positive social and ethical behaviors when using technology, citing sources when appropriate				EXP	R	R	M	M	IA
Discusses common uses of technology and media in daily life and the advantages and disadvantages those uses provide				EXP	R	R	M	M	IA
Uses district network appropriately						EXP	M	M	IA
Gives examples of how technology is used in the workplace and in society							EXP	M	IA
CREATIVITY AND INNOVATION	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Uses simple software programs to increase learning	EXP	R	R	R	R	R	R	R	I
Uses technology resources to illustrate thoughts, ideas, and stories	EXP	R	R	R	R	R	R	R	I
Understands that technology can be used for problem solving and communication	EXP	R	R	R	R	R	R	R	I
Uses multimedia software		EXP	R	R	R	R	R	R	I
Uses charts and graphs to visually display information						EXP	R	R	I
Uses productivity and multimedia tools individually and in collaboration with others to prepare publiations and construct technology enhanced models.							EXP	R	I
Produces professional format quality documents							EXP	R	I
Produces charts and graphs to visually display information from a spreadsheet							EXP	R	I
COMMUNICATION AND COLLABORATION	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Is aware of telecommunication tools such as email	EXP	R	R	R	R	R	R	R	R
Communicates with others with adult support	EXP	R	R	R	R	R	R	R	R
Uses telecommunication tools such as email and bulletin boards to exchange information with peers, experts, and others				EXP	EXP	EXP	R	R	I
Accesses appropriate websites for information on current events and community activities				EXP	EXP	R	R	R	IA
Uses on-line sources to collaborate with others on a shared project					EXP	EXP	R	R	I
Designs web pages to publish and present products for audiences inside and outside of the classroom							EXP	R	I
Uses email, chat rooms, bulletin boards, etc. to investigate curriculum related topics and develop solutions to problems.							EXP	R	I
RESEARCH AND INFORMATION FLUENCY	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Uses the computer to locate information	EXP	R	R	R	R	M			
Uses the internet to locate and retrieve information		EXP	R	R	R	M	M	IA	IA
Understands that not all information on the Internet is accurate and begins to evaluate the source for bias, relevace, accuracy and appropriateness				EXP	R	R			
Uses the Internet efficiently and effectively, using a variety of search engines				EXP	R	M	M	IA	IA

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Evaluates a website for accuracy, relevance, appropriateness, comprehensiveness and bias						EXP	R	M	IA
Uses key words to broaden and narrow Internet searches using a variety of search engines							EXP	M	IA
CRITICAL THINKING, PROBLEM SOLVING, AND DECISION MAKING	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Uses technology resources such as puzzles and logical thinking programs to develop problem solving skills	EXP	R	R	R	R	R	R	R	R
Uses information learned from technology resources to make decisions	EXP	R	R	R	R	R	R	R	I
Uses technology resources such as puzzles, logical thinking programs, the Internet, and software programs to develop problem solving skills				EXP	R	R	R	R	I
Uses information collected in a spreadsheet to draw a conclusion or make a decision					EXP	R	R	R	I
Uses hardware as tools to enhance problem solving and decision making						EXP	R	R	I
KEYBOARDING SKILLS	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Recognizes letters on the keyboard as capital letters	EXP	R	R	M					
Recognizes that letters typed on the keyboard are lower case unless the Shift Key is used	EXP	R	R	M					
Locates, identifies, and uses letter, number, and punctuation keys	EXP	R	R	M					
Uses correct spacing between words.	EXP	R	R	M					
Uses thumb on the spacebar	EXP	R	R	R	M				
Uses both hands simultaneously on the keyboard		EXP	R	R	M				
Identifies the location and function of these keys: Enter, Escape, Spacebar, Shift Arrows, and Backspace		EXP	R	R	M				
Uses correct spacing after punctuation				EXP	R	R	M	M	
Uses correct hand-finger, home row, and pairing of fingers				EXP	R	R	M	M	
Uses left hand on the left side of the keyboard				EXP	R	R	M	M	
Uses right hand on the right side of the keyboard				EXP	R	R	M	M	
Uses correct technique for key striking and keying by touch				EXP	R	R	M	M	
Uses correct posture				EXP	R	R	M	M	
Identifies the location and function of the Tab key				EXP	R	R	M	M	
Enters data at a rate of 10-15 words per minute				EXP	R	M			
Enters data at a rate of 20 words per minute							M		
Enters data at a rate of 25 words per minute								M	
Enters data at a rate of 30 words per minute									M

Appendix B:

Computer Lab Assistants
K-6 Technology Skills
Scope and Sequence

The K-6 Technology Skills will be delivered to students during weekly Unified Arts classes by Computer Lab Assistant in each building.

COMPUTER LAB ASSISTANT

TECHNOLOGY OPERATIONS AND CONCEPTS	K	1	2	3	4	5	6
Identifies parts of the computer such as the monitor, keyboard, and mouse	M						
Operates the mouse	M						
Operates arrow keys	M						
Uses "single-click", "double-click", and "click-and-drag" functions of mouse	M						
Opens and closes programs	M						
Produces and edits grade appropriate documents	M	M	M	M	M	M	M
Saves documents (to single location)	EXP	R	R	M			
Saves documents (to multiple locations)				EXP	R	R	M
Prints simple documents with adult permission	EXP	R	M	M			
Uses Print Preview before printing documents				EXP	R	R	M
Logs on and off the computer		M	M				
Locates and opens a saved file (from a single location)		M	M	M			
Changes font, color, and size		M					
Toggles between two programs		EXP	M				
Creates and names a folder		EXP	M				
Saves pictures from internet into a folder for later use		EXP	M				
Resizes pictures		EXP	M				
Inserts pictures/clip art into a document			M				
Adds and resizes text boxes			M				
Uses tool icons such as bold, italicize, and underline			EXP	M			
Uses tab key to indent			EXP	R	M		
Utilizes cut, copy, and paste features			EXP	R	R	M	
Uses spell check			EXP	R	R	M	
Accesses information from My Computer window (CD ROM, DVD, thumb drive, scanner, camera)			EXP	R	R	M	
Accesses and uses an existing spreadsheet and can explain its purpose				M			
Opens, closes, and restores Windows				EXP	M		
Uses the tool icons such as paragraph indent and justification				EXP	R	M	
Inserts hyperlinks into documents				EXP	R	R	M
Uses and describes functions of basic peripheral devices such as a printer and scanner					M		
Uses Undo icon					M		

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TECHNOLOGY OPERATIONS AND CONCEPTS	K	1	2	3	4	5	6
Prints landscape and portrait modes					M		
Utilizes print options					EXP	R	R
Locates and opens a saved file (from multiple locations)					R	M	
Creates a table from word processing software					EXP	M	
Creates and formats columns					EXP	M	
Creates simple spreadsheets to collect age-appropriate data					EXP	M	
Inserts and formats bullets					EXP	M	
Connects peripheral devices (Flip video, digital audio recorder, digital camera, web cam, etc.)					EXP	R	M
Utilizes the Help feature						EXP	M
Changes margin formats						EXP	M
Uses Track Changes for editing purposes						EXP	M
Explains the function of a database							M
Troubleshoots basic technical problems							EXP
Integrates two or more programs							EXP
Produces a simple database							EXP
Uses formulas within an Excel spreadsheet							EXP
Changes document views							EXP
Uses Window menu to compare and rearrange document viewing formats							EXP
Moves and copies files from one location to another							EXP
Uses components of Google Docs							EXP

Appendix C:

Library Staff
Digital Citizenship
Research & Information Fluency
Scope and Sequence

Library staff will deliver the components of the Technology Curriculum related to Digital Citizenship and Research and Information Fluency. The identified skills in each of these areas is outlined in the following pages and will be delivered during the Unified Arts Library class time.

LIBRARY STAFF

TECHNOLOGY OPERATIONS AND CONCEPTS	K	1	2	3	4	5	6	7	8
Uses the thesaurus					EXP	R	M	IA	IA
Inserts header and footer								EXP	IA
Inserts page numbers								EXP	IA
DIGITAL CITIZENSHIP	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Takes proper care of technology hardware and software	EXP	R	R	R	R	R	M	M	IA
Understands that permission is needed for Internet use	EXP	R	R	R	R	R	M	M	IA
Understands that permisssion is needed for publication of his/her work and /or picture on the Internet	EXP	R	R	R	R	R	M	M	IA
Works cooperatively and collaboratively with peers, teachers, and others when using technology	EXP	R	R	R	R	R	M	M	IA
Understands that you do not communicate with strangers on the Internet	EXP	R	R	R	R	M	M	M	IA
Understands and complies with the District Acceptable Use Guidelines		EXP	R	R	R	M	M	M	IA
Understands the importance of not providing personal information on web spaces (ex. Full name, birthdate, address, school, etc.)			EXP	R	R	R	M	M	IA
Demonstrates positive social and ethical behaviors when using technology, citing sources when appropriate				EXP	R	R	M	M	IA
Discusses common uses of technology and media in daily life and the advantages and disadvantages those uses provide				EXP	R	R	M	M	IA
Uses district network appropriately						EXP	M	M	IA
Gives examples of how technology is used in the workplace and in society							EXP	M	IA
RESEARCH AND INFORMATION FLUENCY	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Uses the computer to locate information	EXP	R	R	R	R	M			
Uses the internet to locate and retrieve information		EXP	R	R	R	M	M	IA	IA
Understands that not all information on the Internet is accurate and begins to evaluate the source for bias, relevace, accuracy and appropriateness				EXP	R	R			
Uses the Internet efficiently and effectively, using a variety of search engines				EXP	R	M	M	IA	IA
Evaluates a website for accuracy, relevance, appropriateness, comprehensiveness and bias						EXP	R	M	IA
Uses key words to broaden and narrow Internet searches using a variety of search engines							EXP	M	IA

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Appendix D:

Technology Education
7/8 Technology Skills

Grade 7&8 Technology Skills will be delivered by the Technology Education teacher and will be woven into the daily Technology Education class. These pages identify the technology skills identified as important for White Mountain Regional School District students to know and be able to do upon entering high school. This is not the comprehensive Technology Education curriculum but only the specific technology skills that we need to ensure eighth grade graduates possess.

TECHNOLOGY EDUCATION

TECHNOLOGY OPERATIONS AND CONCEPTS	7	8
Connects peripheral devices	M	
Troubleshoots basic technical problems	M	
Integrates two or more programs	M	
Produces a simple database	M	
Uses formulas within Excel spreadsheet	M	
Uses spreadsheet features to create graphs	M	
Utilizes the Help feature	M	
Changes document views	M	
Uses Window menu to compare and rearrange document viewing formats	M	
Changes toolbars	M	
Uses email functions (compose, send, reply, reply all, forward, attach, saving attachments	M	
Moves and copies files from one location to another	R	M
Uses components of Google Docs	R	M
Accesses district technology resource page to choose appropriate application(s)/tool(s) for academic purposes	R	M
Designs web pages	EXP	M
Identifies technology tools and explains their uses for academic purposes	EXP	M
Uses video editing tools	EXP	M
Recognizes and explains the function of different file types (mp3, mp4, wav, jpeg, avi, etc.)	EXP	M
Defines and explains in age-appropriate terms:		
Networking		M
LAN/WAN		M
Internet		M
Domain		M
WiFi		M
Routers		M
Switches		M
Firewall		M
IPV 4/IPV 6		M
Web 2.0		M
3G/4G		M
Cloud computing		M

Appendix E:

Classroom Application

The NETS for Students identify the application components of *Creativity and Innovation*, *Communication and Collaboration*, and *Critical Thinking, Problem Solving and Decision Making.* These components provide opportunities for students to apply the technpology skills learned in Computer, Library, and Technology Education classes to content area material. Application opportunities are the expectation of all classroom teachers.

CLASSROOM TEACHER

CREATIVITY AND INNOVATION	K	1	2	3	4	5	6	7	8
Uses simple software programs to increase learning	EXP	R	R	R	R	R	R	R	I
Uses technology resources to illustrate thoughts, ideas, and stories	EXP	R	R	R	R	R	R	R	I
Understands that technology can be used for problem solving and communication	EXP	R	R	R	R	R	R	R	I
Uses multimedia software		EXP	R	R	R	R	R	R	I
Uses charts and graphs to visually display information						EXP	R	R	I
Uses productivity and multimedia tools individually and in collaboration with others to prepare publiations and construct technology enhanced models.							EXP	R	I
Produces professional format quality documents							EXP	R	I
Produces charts and graphs to visually display information from a spreadsheet							EXP	R	I
COMMUNICATION AND COLLABORATION	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Is aware of telecommunication tools such as email	EXP	R	R	R	R	R	R	R	R
Communicates with others with adult support	EXP	R	R	R	R	R	R	R	R
Uses telecommunication tools such as email and bulletin boards to exchange information with peers, experts, and others				EXP	EXP	EXP	R	R	I
Accesses appropriate websites for information on current events and community activities				EXP	EXP	R	R	R	I
Uses on-line sources to collaborate with others on a shared project					EXP	EXP	R	R	I
Designs web pages to publish and present products for audiences inside and outside of the classroom							EXP	R	I
Uses email, chat rooms, bulletin boards, etc. to investigate curriculum related topics and develop solutions to problems.							EXP	R	I
CRITICAL THINKING, PROBLEM SOLVING, AND DECISION MAKING	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Uses technology resources such as puzzles and logical thinking programs to develop problem solving skills	EXP	R	R	R	R	R	R	R	R
Uses information learned from technology resources to make decisions	EXP	R	R	R	R	R	R	R	I
Uses technology resources such as puzzles, logical thinking programs, the Internet, and software programs to develop problem solving skills				EXP	R	R	R	R	I
Uses information collected in a spreadsheet to draw a conclusion or make a decision					EXP	R	R	R	I
Uses simple formula (ex. AutoSum) to calculate numbers in spreadsheet					EXP	R	R	R	I
Uses hardware as tools to enhance problem solving and decision making						EXP	R	R	I

EXP=Expose
R=Reinforce
I=Independent
I/A=Independent/Accountable
M=Master

Appendix F:

National Educational Technology Standards

NETS-S
NETS-T
NETS-A

The NETS for Students, Teachers, and Administrators, are found in this section. These documents are the foundation of our K-8 Technology Curriculum and those which will become the backbone of a high school Technology Curriculum. NETS for Students and NETS for Teachers are non-grade specific recommendations made by the International Society for Technology in Education and should be used by High school teachers as a reference for planning technology application opportunities in their courses.

The ISTE NETS and Performance Indicators for Students (NETS•S)

1. **Creativity and Innovation**
   Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:
   - **a.** apply existing knowledge to generate new ideas, products, or processes
   - **b.** create original works as a means of personal or group expression
   - **c.** use models and simulations to explore complex systems and issues
   - **d.** identify trends and forecast possibilities

2. **Communication and Collaboration**
   Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:
   - **a.** interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
   - **b.** communicate information and ideas effectively to multiple audiences using a variety of media and formats
   - **c.** develop cultural understanding and global awareness by engaging with learners of other cultures
   - **d.** contribute to project teams to produce original works or solve problems

3. **Research and Information Fluency**
   Students apply digital tools to gather, evaluate, and use information. Students:
   - **a.** plan strategies to guide inquiry
   - **b.** locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
   - **c.** evaluate and select information sources and digital tools based on the appropriateness to specific tasks
   - **d.** process data and report results

4. **Critical Thinking, Problem Solving, and Decision Making**
   Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:
   - **a.** identify and define authentic problems and significant questions for investigation
   - **b.** plan and manage activities to develop a solution or complete a project
   - **c.** collect and analyze data to identify solutions and/or make informed decisions
   - **d.** use multiple processes and diverse perspectives to explore alternative solutions

5. **Digital Citizenship**
   Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students:
   - **a.** advocate and practice safe, legal, and responsible use of information and technology
   - **b.** exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
   - **c.** demonstrate personal responsibility for lifelong learning
   - **d.** exhibit leadership for digital citizenship

6. **Technology Operations and Concepts**
   Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:
   - **a.** understand and use technology systems
   - **b.** select and use applications effectively and productively
   - **c.** troubleshoot systems and applications
   - **d.** transfer current knowledge to learning of new technologies

The ISTE NETS and Performance Indicators for Teachers (NETS•T)

Effective teachers model and apply the National Educational Technology Standards for Students (NETS•S) as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community. All teachers should meet the following standards and performance indicators. Teachers:

1. Facilitate and Inspire Student Learning and Creativity

Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments. Teachers:

- **a.** promote, support, and model creative and innovative thinking and inventiveness
- **b.** engage students in exploring real-world issues and solving authentic problems using digital tools and resources
- **c.** promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes
- **d.** model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments

2. Design and Develop Digital-Age Learning Experiences and Assessments

Teachers design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS•S. Teachers:

- **a.** design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity
- **b.** develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress
- **c.** customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources
- **d.** provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching

3. Model Digital-Age Work and Learning

Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society. Teachers:

- **a.** demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations
- **b.** collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation
- **c.** communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats
- **d.** model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning

4. Promote and Model Digital Citizenship and Responsibility

Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. Teachers:

- **a.** advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources
- **b.** address the diverse needs of all learners by using learner-centered strategies and providing equitable access to appropriate digital tools and resources
- **c.** promote and model digital etiquette and responsible social interactions related to the use of technology and information
- **d.** develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital-age communication and collaboration tools

5. Engage in Professional Growth and Leadership

Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers:

- **a.** participate in local and global learning communities to explore creative applications of technology to improve student learning
- **b.** exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others
- **c.** evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning
- **d.** contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community

The ISTE NETS and Performance Indicators for Administrators (NETS•A)

1. Visionary Leadership. Educational Administrators inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization. Educational Administrators:

- **a.** inspire and facilitate among all stakeholders a shared vision of purposeful change that maximizes use of digital-age resources to meet and exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders
- **b.** engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision
- **c.** advocate on local, state, and national levels for policies, programs, and funding to support implementation of a technology-infused vision and strategic plan

2. Digital-Age Learning Culture. Educational Administrators create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students. Educational Administrators:

- **a.** ensure instructional innovation focused on continuous improvement of digital-age learning
- **b**. model and promote the frequent and effective use of technology for learning
- **c.** provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners
- **d.** ensure effective practice in the study of technology and its infusion across the curriculum
- **e.** promote and participate in local, national, and global learning communities that stimulate innovation, creativity, and digital-age collaboration

3. Excellence in Professional Practice. Educational Administrators promote an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources. Educational Administrators:

- **a.** allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration
- **b.** facilitate and participate in learning communities that stimulate, nurture, and support administrators, faculty, and staff in the study and use of technology
- **c.** promote and model effective communication and collaboration among stakeholders using digital-age tools
- **d.** stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning

4. Systemic Improvement. Educational Administrators provide digital-age leadership and management to continuously improve the organization through the effective use of information and technology resources. Educational Administrators:

- **a.** lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources
- **b.** collaborate to establish metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning
- **c.** recruit and retain highly competent personnel who use technology creatively and proficiently to advance academic and operational goals
- **d.** establish and leverage strategic partnerships to support systemic improvement
- **e.** establish and maintain a robust infrastructure for technology including integrated, interoperable technology systems to support management, operations, teaching, and learning

5. Digital Citizenship. Educational Administrators model and facilitate understanding of social, ethical, and legal issues and responsibilities related to an evolving digital culture. Educational Administrators:

- **a.** ensure equitable access to appropriate digital tools and resources to meet the needs of all learners
- **b.** promote, model, and establish policies for safe, legal, and ethical use of digital information and technology
- **c.** promote and model responsible social interactions related to the use of technology and information
- **d.** model and facilitate the development of a shared cultural understanding and involvement in global issues through the use of contemporary communication and collaboration tools

Appendix G:

Technology Support Request Form

The Technology Support Request form can be found on the district website under Departments > Technology > Technology Integration > Technology Support Request. Please use the electronic version of this form to request technology support regarding technology skills, applications, and/or integration needs.

Technology Support Request

The purpose of this form is to track instructional technology needs over time. Information logged here will help to determine our trends in technology use and inform professional developement needs. Please complete the following fields.

Your username (**splumley@sau36.org**) will be recorded when you submit this form. Not **splumley**? Sign out
* Required

Name *

School *
Jefferson

Grade Level *

Support Need *

- [ ] Technology Skills
- [ ] Technology Application
- [ ] Technology Integration
- [ ] Other:

Meeting Dates and Times *
Please include convenient dates and non-instructional times.

Lesson Description *
Describe what it is you want your students to know and/or be able to do.