

Tantasqua Regional & Union 61 School Districts

Brimfield – Brookfield – Holland – Sturbridge – Wales

K-12 EDUCATIONAL TECHNOLOGY MILESTONES

“We must prepare students for their future not for our past.” – David Thornberg

The Tantasqua Regional and Union 61 School Districts’ Educational Technology Milestones are based on the Massachusetts Department of Education’s (DOE) Recommended PreK-12 Instructional Technology Standards. In turn, the Massachusetts standards are based on the National Educational Technology Standards (NETS) for Students developed by the International Society for Technology in Education (ISTE) in consultation with the U.S. Department of Education.

ISTE Standards

The national standards for students are built upon the six “technology foundation standards” that were identified by the ISTE. These standards include the following:

1. Basic operations and concepts
2. Social, ethical, and human issues
3. Technology productivity tools
4. Technology communication tools
5. Technology research tools
6. Technology problem-solving and decision-making tools

Massachusetts’ Standards

The Massachusetts’ DOE consolidated these six standards into three recommended standards. The purpose is to provide guidelines to schools on what students should know and be able to do with regard to using education technology. The goal is to assist students in developing a comfort level, as well as a proficiency level, in working with multiple educational technology tools.

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware software, and connectivity.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Boldfaced items identify new skills for current grade level.

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

For each standard, the DOE identified multiple ways for students to demonstrate learning across the grade-level spans of K-4, 5-8, and 9-12. For kindergarten through grade four, the expectation is that students explore concepts and skills. Starting at grade five, the expectations change. Students are expected to achieve a level of proficiency, so performance indicators are identified. As a result, Tantasqua Regional and Union 61's Educational Technology Milestones are aligned with the international, national, and state standards.

As we engage in the ongoing implementation of these educational technology milestones, we know that change is inevitable. With particular regard to technology, we know that change is not only inevitable, but also constant. David Thornberg, a futurist and nationally renowned educational technology pioneer, compares buying a computer to "purchasing an ice sculpture in July." Technology hardware and skills become obsolete very quickly. Therefore, we need to keep in mind that technology is not an end in itself.

Educational technology must be an integrated part of the total learning experience, and a tool that is used to improve student learning. It is student learning and achievement that must remain at the center of our planning. As a result, adjustments to these milestones will be made on a continuous basis to ensure that we are truly preparing our students for their future.

Information Literacy Research Process

The Massachusetts School Library Media Association provides benchmarks on information literacy. Information literacy is the ability to locate, use and evaluate information from a wide variety of print and electronic resources. These benchmarks are based on Bloom's Taxonomy and the research process known as the Big6™. Information literacy benchmarks have been integrated with the technology benchmarks presented in this document.

Massachusetts Information Literacy Benchmarks

1. Survey an information topic by defining the problem and identifying the information needed.
2. Develop information-seeking strategies by investigating a wide variety of sources.
3. Access information resources to locate specific information.
4. Evaluate resources for their appropriateness, select the best and extract the most relevant information.
5. Organize new information from multiple sources to construct a knowledge product that communicates the results of their research.
6. Assess the final and the research process including both self- and peer evaluation.

Boldfaced items identify new skills for current grade level.

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PreK-K EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills	Assessment
Pre-K	None	None
K	1.1 Develop basic skills for using hardware and applications a. Place cursor at a specified location on the screen b. Demonstrate mouse skills c. Enter text	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.
	1.2 Use correct terminology for basic components of a computer system a. Monitor, keyboard, printer, cursor, mouse, etc. b. Understand the basic function of the computer parts	
	1.3 Explore and develop basic keyboarding skills * a. Identify and use letter and number keys	
	1.10 Explore the use of drawing and painting (graphics) applications for class projects	

* The district determines whether students will learn touch typing or simply become familiar with the keyboard functions.

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills	Assessment
Pre-K	None	None
K	2.1 Follow classroom rules for responsible use of computers	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.
	2.4 Develop understanding of how the computer is a tool for learning	
	2.5 Explore issues of ergonomics and safety in using computers	

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills	Assessment
Pre-K	None	None
K	None	None

Boldfaced items identify new skills for current grade level.

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GRADE 1 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
1	<p>1.1 Develop basic skills for using hardware and applications</p> <ul style="list-style-type: none"> a. Place cursor at a specified location on the screen b. Demonstrate mouse skills c. Enter text d. Open, close and quit a program e. Print a document with permission f. Use spacebar g. Navigate using scroll bars h. Use arrow keys i. Use special keys (e.g., shift and delete) 	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.
	<p>1.2 Use correct terminology for basic components of a computer system</p> <ul style="list-style-type: none"> a. Monitor, keyboard, printer, cursor, mouse, etc. b. Understand the basic function of the computer parts 	
	<p>1.3 Explore and develop basic keyboarding skills</p> <ul style="list-style-type: none"> a. Identify and use letter and number keys b. Recognize the layout of the keyboard 	
	<p>1.4 Explore basic formatting features of a word processing program</p> <ul style="list-style-type: none"> a. Recognize it as a tool for writing and publishing b. Input and delete text 	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
1	1.10 Explore the use of drawing and painting (graphics) applications for class projects	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
1	2.1 Follow classroom rules for responsible use of computers	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.
	2.2 Develop understanding of the school’s rules for safe and ethical Internet use (Use of Internet in this grade span is under close supervision and determined by district policy)	
	2.4 Develop understanding of how the computer is a tool for learning	
	2.5 Explore issues of ergonomics and safety in using computers	

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills	Assessment
1	None	None

Boldfaced items identify new skills for current grade level.

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GRADE 2 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
2	1.1 Develop basic skills for using hardware and applications <ul style="list-style-type: none"> a. Place cursor at a specified location on the screen b. Demonstrate mouse skills c. Enter text d. Open, close and quit a program e. Print a document with permission f. Use spacebar g. Navigate using scroll bars h. Use arrow keys i. Use special keys (e.g., shift and delete) 	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.
	1.2 Use correct terminology for basic components of a computer system <ul style="list-style-type: none"> a. Monitor, keyboard, printer, cursor, mouse, etc. b. Understand the basic function of the computer parts 	
	1.3 Explore and develop basic keyboarding skills <ul style="list-style-type: none"> a. Identify and use letter and number keys b. Recognize the layout of the keyboard c. Locate and use letters and numbers d. Use both hands on the keyboard 	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
2	1.4 Explore basic formatting features of a word processing program a. Recognize it as a tool for writing and publishing b. Input and delete text	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.
	1.10 Explore the use of drawing and painting (graphics) applications for class projects.	

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
2	2.1 Follow classroom rules for responsible use of computers	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.
	2.2 Develop understanding of the school’s rules for safe and ethical Internet use (Use of Internet in this grade span is under close supervision and determined by district policy)	
	2.4 Develop understanding of how the computer is a tool for learning	
	2.5 Explore issues of ergonomics and safety in using computers	

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills	Assessment
2	3.1 Explore and develop understanding of how to gather information from a variety of electronic sources including teacher-selected Web sites, CDROM encyclopedias, and automated card catalog	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.

Boldfaced items identify new skills for current grade level.

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GRADE 3 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
3	1.1 Develop basic skills for using hardware and applications <ul style="list-style-type: none"> a. Place cursor at a specified location on the screen b. Demonstrate mouse skills c. Enter text d. Open, close and quit a program e. Print a document with permission f. Use spacebar g. Navigate using scroll bars h. Use arrow keys i. Use special keys (e.g., shift and delete) j. Discuss how to startup and shutdown properly k. Retrieve, open, save, and close a file to desired destination – introductory 	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.
	1.2 Use correct terminology for basic components of a computer system <ul style="list-style-type: none"> a. Monitor, keyboard, printer, cursor, mouse, etc. b. Understand the basic function of the computer parts 	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
3	1.3 Explore and develop basic keyboarding skills a. Identify and use letter and number keys b. Recognize the layout of the keyboard c. Locate and use letters and numbers d. Use both hands on the keyboard e. Introduce proper home row position	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.
	1.4 Explore basic formatting features of a word processing program a. Recognize it as a tool for writing and publishing b. Input and delete text c. Change letter size, font, style, and color d. Use bold, italics, and underline	
	1.7 Collaborate with classmates to use teacher-selected, bookmarked, Web sites, and hypertext links.	
	1.10 Explore the use of drawing and painting (graphics) applications for class projects.	

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
3	2.1 Follow classroom rules for responsible use of computers	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.
	2.2 Develop understanding of the school’s rules for safe and ethical Internet use. (Use of Internet in this grade span is under close supervision and determined by district policy)	
	2.4 Develop understanding of how the computer is a tool for learning	
	2.5 Explore issues of ergonomics and safety in using computers	

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
3	3.1 Explore and develop understanding of how to gather information from a variety of electronic sources, including teacher-selected Web sites, CDROM encyclopedias, and automated card catalog	Due to the exploratory nature of these concepts and skills, an informal teacher observation will be used for assessment.

Boldfaced items identify new skills for current grade level.

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GRADE 4 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
4	<p>1.1 Develop basic skills for using hardware and applications</p> <ul style="list-style-type: none"> a. Place cursor at a specified location on the screen b. Demonstrate mouse skills c. Enter text d. Open, close and quit a program e. Print a document with permission f. Use spacebar g. Navigate using scroll bars h. Use arrow keys i. Use special keys (e.g., shift and delete) j. Discuss how to startup and shutdown properly k. Retrieve, open, save, and close a file to desired destination – introductory 	A word processing document that addresses all skills in Standards 1.1 through 1.4 and 1.10.
	<p>1.2 Use correct terminology for basic components of a computer system</p> <ul style="list-style-type: none"> a. Monitor, keyboard, printer, cursor, mouse, etc. b. Understand the basic function of the computer parts 	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
4	1.3 Explore and develop basic keyboarding skills <ul style="list-style-type: none"> a. Identify and use letter and number keys b. Recognize the layout of the keyboard c. Locate and use letters and numbers – continue keyboarding program d. Use both hands on the keyboard e. Use proper home row position 	A word processing document that addresses all skills in Standards 1.1 through 1.4 and 1.10.
	1.4 Explore basic formatting features of a word processing program <ul style="list-style-type: none"> a. Recognize it as a tool for writing and publishing b. Input and delete text c. Change letter size, font, style, and color d. Use bold, italics, and underline 	
	1.5 Explore and understand the basic function and purpose of a database (e.g., online/electronic encyclopedias and dictionaries)	Teacher observation for Standards 1.5 through 1.9.
	1.6 Explore and understand the basic functions and purpose of a spreadsheet (e.g., tables, charts, and graphs)	
	1.7 Collaborate with classmates to use teacher-selected, bookmarked, Web sites, and hypertext links.	
	1.8 Collaborate with classmates and teacher to send a class e-mail message (at discretion of district and teacher).	
	1.9 Collaborate with classmates and teacher to create a slide presentation with existing template.	
	1.10 Explore the use of drawing and painting (graphics) applications for class projects.	A word processing document that addresses all skills in Standards 1.1 through 1.4 and 1.10.

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
4	2.1 Follow classroom rules for responsible use of computers	Students are introduced to ethics and safety issues at an exploratory level; hence, an informal teacher observation is the means of assessment.
	2.2 Develop understanding of the school’s rules for safe and ethical Internet use (Use of Internet in this grade span is under close supervision and determined by district policy)	
	2.3 Explore practices for evaluating Web sites (District policy determines Internet use)	
	2.4 Develop understanding of how the computer is a tool for learning	
	2.5 Explore issues of ergonomics and safety in using computers	

Boldfaced items identify new skills for current grade level.

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Exploratory Concepts & Skills (Continue to address earlier skills as needed.)	Assessment
4	3.1 Explore and develop understanding of how to gather information from a variety of electronic sources, including teacher-selected Web sites, CDROM encyclopedias, and automated card catalog	Student project (e.g., multimedia presentation) based on grade level curriculum.
	3.2 Explore the use of application programs (e.g., word processing, database, spreadsheet) for organizing information into charts, tables, and diagrams	
	3.3 Explore the use of content-specific tools to enhance understanding of curriculum content (e.g., environmental probes, sensors, robotics, simulation software, and measuring devices)	
	3.4 Collaborate with classmates and teacher in creating a multimedia presentation to communicate learning with others	
	3.5 Collaborate with classmates and teacher to exchange e-mail with another classroom (Use of e-mail is at district discretion)	

Boldfaced items identify new skills for current grade level.

Standard 3/Information Literacy

Grade Level	Instructional Technology Standard #3 Information Literacy Research Process	Related Technology Standard	Assessment
4	By the end of 4th grade students should be able to utilize a process, such as Big6™, to locate, use, and evaluate information:		Assessment correlates to Instructional Technology Standard 3.
	1 Survey an information topic by defining the problem and identifying the information needed. <ul style="list-style-type: none"> a. Restate an assignment b. Use print and electronic references to gain an overview of a topic c. Develop questions about a topic d. List “what I know” and “what I need to find out” 		
	2 Develop information-seeking strategies by investigating a wide variety of print and electronic sources. <ul style="list-style-type: none"> a. List a variety of possible sources of information b. Identify genres, including fiction, non-fiction, reference, science fiction, historical fiction, fantasy 	3.1	
3 Access information resources to locate specific information. <ul style="list-style-type: none"> a. Identify the parts of a non-fiction book; title page, table of contents, index, and glossary b. Use the Dewey Decimal System to locate print and non-print resources c. Use electronic media to locate information 			

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standard #3 Information Literacy Research Process	Related Technology Standard	Assessment
4	4 Evaluate resources for their appropriateness, select the best and extract the most relevant information. a. Extract relevant information from sources		Assessment correlates to Instructional Technology Standard 3.
	5 Organize new information from multiple sources to construct a knowledge product that communicates the results of their research. a. Develop organizational strategies b. Combine information from several sources to produce a product that answers questions about a topic c. Give credit too the sources of information d. Identify examples of plagiarism	3.2, 3.4	
	6 Assess the final and the research process including both self- and peer evaluation. a. Use self- and peer evaluation to assess the final product		

Boldfaced items identify new skills for current grade level.

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GRADE 5 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed)	Assessment
5	1.11 Identify components of a computer system, understand their functions, and use appropriate terminology in speaking about them (e.g., operating system, hard drive, memory, window)	<ul style="list-style-type: none"> • Student project based on grade level curriculum • Informal teacher observation
	1.12 Identify and use basic features of a computer operating system	
	1.13 Save a file to the desktop, the hard drive, and external storage spaces (e.g., floppy disk, CD-ROM, virtual electronic space)	
	1.14 Select a printer and print a document	
	1.16 Develop efficient keyboarding technique	
	1.17 Identify and use editing and formatting features of a word processing program (e.g., centering, line spacing, margins, cut and paste, fonts, spelling)	
	1.18 Insert images (e.g., graphics, clip art, tables) from other files into word-processing document	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed)	Assessment
5	1.19 Describe structure and function of database and identify components (e.g., record, field)	<ul style="list-style-type: none"> • Student project based on grade level curriculum • Informal teacher observation
	1.21 Perform simple operations in a database (e.g., browse, sort, search)	
	1.25 Identify and use navigation features of a browser (e.g., “go,” “back,” “forward”)	
	1.31 Use correct terminology in speaking about electronic communications (e.g., browser, search engine, online)	
	1.32 Create a slide presentation using appropriate applications	
	1.33 Identify and use drawing and painting applications as appropriate for class projects	
	1.34 Identify appropriate applications for a classroom project	

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
5	2.6 Explain and demonstrate understanding of classroom rules regarding responsible use of computers (responsible behavior around equipment, respect for other people’s work, and appropriate collaborative behavior)	Informal teacher observation
	2.7 Explain and demonstrate ethical and legal behavior in copying files, applications, and media.	
	2.8 Explain potential problem of computer viruses and exercise caution in opening e-mail attachments from unknown sources (Use of e-mail is at district discretion)	
	2.9 Explain safe practices for sharing personal information via e-mail and the Internet (Use of e-mail is at district discretion)	
	2.10 Explain proper e-mail etiquette (Use of e-mail is at district discretion)	
	2.11 Describe and demonstrate knowledge of the school’s Acceptable Use Policy, and know the consequences of violating that policy	
	2.14 Introduce correct citations for text and images gathered from electronic sources and understand that the use of materials is limited by the fair use rule of copyright law	
	2.15 Develop an awareness of the issue of ergonomics (e.g., Repetitive Stress Injuries) and how to use equipment safely	

Boldfaced items identify new skills for current grade level.

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
5	3.6 In keeping with the research process outlined in Standard 24 of the <i>English Language Arts Curriculum Framework</i>, identify electronic sources of information (e.g., Internet, CD-ROM, online periodical databases, and online catalogs)	Student project based on grade level curriculum
	3.7 Use search engines effectively to find relevant, unbiased, and current information on a subject (Standard 2 performance indicators apply—i.e., evaluate Web sites and introduce correct citations for sources)	
	3.9 Communicate results of research and learning with others using the most appropriate tools (e.g., desktop-published or word-processed report, multimedia presentation)	

Boldfaced items identify new skills for current grade level.

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GRADE 6 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed)	Assessment
6	1.11 Identify components of a computer system, understand their functions, and use appropriate terminology in speaking about them (e.g., operating system, hard drive, memory, window).	Students design curriculum based project demonstrating all skills.
	1.12 Identify and use basic features of a computer operating system	
	1.13 Save a file to the desktop, the hard drive, and external storage spaces	
	1.14 Select a printer and print a document with appropriate page setup and orientation	
	1.16 Develop efficient keyboarding technique	
	1.17 Identify and use editing and formatting features of a word processing program (e.g., centering, line spacing, margins, cut and paste, fonts, styles , spelling)	
	1.18 Insert images (e.g., graphics, clip art, tables) from other files into word-processing document	
	1.19 Describe structure and function of database and identify components (e.g., record, field)	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed)	Assessment
6	1.21 Perform simple operations in a database (e.g., browse, sort, search)	Students design curriculum based project demonstrating all skills.
	1.25 Identify and use navigation features of browser (e.g., “go,” “back,” “forward”)	
	1.26 Using a browser, “bookmark” a teacher-approved Web site for future reference	
	1.27 Identify basic elements of a Web site (e.g., URL, hyperlinks, site map, etc.)	
	1.28 Copy an image from a Web site into an appropriate file; write a citation caption in keeping with copyright law	
	1.31 Use correct terminology in speaking about electronic communications (e.g., browser, search engine, online)	
	1.32 Create a slide presentation using appropriate applications	
	1.33 Identify and use drawing and painting applications as appropriate	
	1.34 Identify appropriate applications for a classroom project	

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
6	2.6 Explain and demonstrate understanding of classroom rules regarding responsible use of computers (responsible behavior around equipment, respect for other people’s work, and appropriate collaborative behavior)	Informal teacher observation
	2.7 Explain and demonstrate ethical and legal behavior in copying files, applications, and media	
	2.8 Explain potential problem of computer viruses and exercise caution in opening e-mail attachments from unknown sources (Use of e-mail is at district discretion)	
	2.9 Explain safe practices for sharing personal information via e-mail and the Internet (Use of e-mail is at district discretion)	
	2.10 Explain proper e-mail etiquette (Use of e-mail is at district discretion)	
	2.11 Describe and demonstrate knowledge of the school’s Acceptable Use Policy, and know the consequences of violating that policy	
	2.12 Validate a Web site for authenticity (e.g., find site sponsor, author, and date the site was last updated)	
	2.13 Explain how media and technology can be misused to distort or exaggerate information	
	2.14 Introduce correct citations for text and images gathered from electronic sources and understand that the use of materials is limited by the fair use rule of copyright law	
	2.15 Develop an awareness of the issue of ergonomics (e.g., Repetitive Stress Injuries) and how to use equipment safely	

Boldfaced items identify new skills for current grade level.

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
6	3.6 In keeping with the research process outlined in Standard 24 of the <i>English Language Arts Curriculum Framework</i> , identify electronic sources of information (e.g., Internet, CD-ROM, online periodical databases, and online catalogs)	Students design curriculum based project demonstrating all skills.
	3.7 Use search engines effectively to find relevant, unbiased, and current information on a subject. (Standard 2 performance indicators apply—i.e., evaluate Web sites and write correct citations for sources)	
	3.8 Organize information that is collected using a variety of tools (e.g., spreadsheet, database, saved files)	
	3.9 Communicate results of research and learning with others using the most appropriate tools (e.g., desktop-published or word-processed report, multimedia presentation).	
	3.10 Manipulate data using charting tools and graphic organizers (e.g., concept mapping, flow charting, and outlining software) to connect ideas and organize information	

Boldfaced items identify new skills for current grade level.

Tantasqua Regional & Union 61 School Districts

Brimfield – Brookfield – Holland – Sturbridge – Wales

GRADE 7 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed)	Assessment
7	1.11 Identify components of a computer system, understand their functions, and use appropriate terminology in speaking about them (e.g., operating system, hard drive, memory, window)	<ul style="list-style-type: none"> • Informal teacher observation for some skills. • Graded Typing Drills • Project based curriculum: Block Style Letters MLA Reports
	1.12 Identify and use basic features of a computer operating system	
	1.13 Save a file to the desktop, the hard drive, and external storage spaces	
	1.14 Select a printer and print a document with appropriate page setup and orientation	
	1.15 Operate peripheral equipment (e.g., scanner, digital camera)	
	1.16 Develop efficient keyboarding technique – use controlled drills to develop maximum skill and minimum time; instruction centers on keying and formatting; minimum of 30 wpm	
	1.17 Identify and use editing and formatting features of a word processing program (e.g., centering, line spacing, margins, cut and paste, fonts, styles, spelling, page numbers, header/footer)	
	1.18 Insert images (e.g., graphics, clip art, word art , tables) from other files into word-processing document	
	1.19 Describe structure and function of database and identify components (e.g., record, field)	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed)	Assessment
7	1.21 Perform simple operations in a database (e.g., browse, sort, search)	
	1.22 Describe structure and function of a spreadsheet (e.g., cells, rows, columns, formulas) and apply formatting features	
	1.23 Create an original spreadsheet, entering simple formulas, text, and numbers a. edit data entries b. perform calculations c. print spreadsheets d. analyze data on a spreadsheet	
	1.24 Produce simple charts and graphs from spreadsheet	
	1.25 Identify and use navigation features of browser (e.g., “go,” “back,” “forward”)	
	1.26 Using a browser, “bookmark” a teacher-approved Web site for future reference	
	1.27 Identify basic elements of a Web site (e.g., URL, hyperlinks, site map, etc.)	
	1.28 Copy an image from a Web site into an appropriate file; write a correct citation caption in keeping with copyright law	
	1.31 Use correct terminology in speaking about electronic communications (e.g., browser, search engine, online)	
	1.32 Create a slide presentation using appropriate applications	
	1.33 Identify and use drawing and painting applications as appropriate	
	1.34 Identify appropriate applications for a classroom project	

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
7	2.6 Explain and demonstrate understanding of classroom rules regarding responsible use of computers (responsible behavior around equipment, respect for other people’s work, and appropriate collaborative behavior)	<ul style="list-style-type: none"> • Informal teacher observation • Project based curriculum
	2.7 Explain and demonstrate ethical and legal behavior in copying files, applications, and media	
	2.8 Explain potential problem of computer viruses and exercise caution in opening e-mail attachments from unknown sources (Use of e-mail is at district discretion)	
	2.9 Explain safe practices for sharing personal information via e-mail and the Internet. (Use of e-mail is at district discretion)	
	2.10 Explain proper e-mail etiquette (Use of e-mail is at district discretion)	
	2.11 Describe and demonstrate knowledge of the school’s Acceptable Use Policy, and know the consequences of violating that policy	
	2.12 Validate a Web site for authenticity (e.g., find site sponsor, author, and date the site was last updated)	
	2.13 Explain how media and technology can be misused to distort or exaggerate information	
	2.14 Write correct citations for text and images gathered from electronic sources and understand that the use of materials is limited by the fair use rule of copyright law	
	2.15 Develop an awareness of the issue of ergonomics (e.g., Repetitive Stress Injuries) and how to use equipment safely	

Boldfaced items identify new skills for current grade level.

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
7	3.6 In keeping with the research process outlined in Standard 24 of the <i>English Language Arts Curriculum Framework</i> , identify electronic sources of information (e.g., Internet, CD-ROM, online periodical databases, and online catalogs)	<ul style="list-style-type: none"> • Informal teacher observation • Project based curriculum
	3.7 Use search engines effectively to find relevant, unbiased, and current information on a subject (Standard 2 performance indicators apply—i.e., evaluate Web sites and write correct citations for sources)	
	3.8 Organize information that is collected using a variety of tools (e.g., spreadsheet, database, saved files)	
	3.9 Communicate results of research and learning with others using the most appropriate tools (e.g., desktop-published or word-processed report, multimedia presentation)	
	3.10 Manipulate data using charting tools and graphic organizers (e.g., concept mapping, flow charting, and outlining software) to connect ideas and organize information	

Boldfaced items identify new skills for current grade level.

Tantasqua Regional & Union 61 School Districts

Brimfield – Brookfield – Holland – Sturbridge – Wales

GRADE 8 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed)	Assessment
8	1.11 Identify components of a computer system, understand their functions, and use appropriate terminology in speaking about them (e.g., operating system, hard drive, memory, window)	Project based curriculum
	1.12 Identify and use basic features of a computer operating system	
	1.13 Save a file to the desktop, the hard drive, and external storage spaces	
	1.14 Select a printer and print a document with appropriate page setup and orientation	
	1.15 Operate peripheral equipment (e.g., scanner, digital camera)	
	1.16 Develop efficient keyboarding technique – use controlled drills to develop maximum skill and minimum time; instruction centers on keying and formatting; minimum of 25 wpm	
	1.17 Identify and use editing and formatting features of a word processing program (e.g., centering, line spacing, margins, cut and paste, fonts, styles, spelling, page numbers, header/footer).	
	1.18 Insert images (e.g., graphics, clip art, word art, tables) from other files into word-processing document	
	1.19 Describe structure and function of database using appropriate vocabulary and identify components (e.g., record, field)	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed)	Assessment
8	1.20 Create an original database, defining field formats and adding new records	Project based curriculum
	1.21 Perform simple operations in a database (e.g., browse, sort, search, delete, add data)	
	1.22 Describe structure and function of a spreadsheet using appropriate vocabulary (e.g., cells, rows, columns, formulas) and apply formatting features	
	1.23 Create an original spreadsheet, entering simple formulas, text, and numbers a. edit data entries b. perform calculations c. print spreadsheets d. analyze data on a spreadsheet	
	1.24 Produce simple charts and graphs from spreadsheet	
	1.25 Identify and use navigation features of browser (e.g., “go,” “back,” “forward”)	
	1.26 Using a browser, “bookmark” a teacher-approved Web site for future reference	
	1.27 Identify basic elements of a Web site (e.g., URL, hyperlinks, site map, etc.)	
	1.28 Copy an image from a Web site into an appropriate file; write a citation caption in keeping with copyright law	
	1.29 Using e-mail, create and send a message (Use of e-mail is at district discretion)	
	1.31 Use correct terminology in speaking about electronic communications (e.g., browser, search engine, online)	
	1.32 Create a slide presentation using appropriate applications	
	1.33 Identify and use drawing and painting applications as appropriate	
	1.34 Identify appropriate applications for a classroom project	

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
8	2.6 Explain and demonstrate understanding of classroom rules regarding responsible use of computers (responsible behavior around equipment, respect for other people’s work, and appropriate collaborative behavior).	Informal teacher observation
	2.7 Explain and demonstrate ethical and legal behavior in copying files, applications, and media.	
	2.8 Explain potential problem of computer viruses and exercise caution in opening e-mail attachments from unknown sources. (Use of e-mail is at district discretion.)	
	2.9 Explain safe practices for sharing personal information via e-mail and the Internet. (Use of e-mail is at district discretion.)	
	2.10 Explain proper e-mail etiquette. (Use of e-mail is at district discretion.)	
	2.11 Describe and demonstrate knowledge of the school’s Acceptable Use Policy, and know the consequences of violating that policy.	
	2.12 Validate a Web site for authenticity (e.g., find site sponsor, author, and date the site was last updated)	
	2.13 Explain how media and technology can be misused to distort or exaggerate information.	
	2.14 Write correct citations for text and images gathered from electronic sources. Understand that use of materials is limited by the fair use rule of copyright law.	
	2.15 Develop an awareness of the issue of ergonomics (e.g., Repetitive Stress Injuries) and how to use equipment safely.	

Boldfaced items identify new skills for current grade level.

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
8	3.6 In keeping with the research process outlined in Standard 24 of the <i>English Language Arts Curriculum Framework</i> , identify electronic sources of information (e.g., Internet, CD-ROM, online periodical databases, and online catalogs).	Project based curriculum
	3.7 Use search engines effectively to find relevant, unbiased, and current information on a subject. (Standard 2 performance indicators apply—i.e., evaluate Web sites and write correct citations for sources.)	
	3.8 Organize information that is collected using a variety of tools (e.g., spreadsheet, database, saved files).	
	3.9 Communicate results of research and learning with others using the most appropriate tools (e.g., desktop-published or word-processed report, multimedia presentation).	
	3.10 Manipulate data using charting tools and graphic organizers (e.g., concept mapping, flow charting, and outlining software) to connect ideas and organize information.	
	3.11 Under teacher’s guidance, and at discretion of district, use e-mail to communicate with others (e.g., students in other classrooms, experts in a subject, teachers).	

Boldfaced items identify new skills for current grade level.

Standard 3/Information Literacy

Grade Level	Instructional Technology Standard #3 Information Literacy Research Process	Related Technology Standard	Assessment
8	(Continue to address earlier skills as needed) By the end of 8 th grade students should be able to utilize a process, such as Big6™, to locate, use, and evaluate information:		Assessment correlates to Instructional Technology Standard 3.
	1 Survey an information topic by defining the problem and identifying the information needed. a. Explain the criteria of the assignment b. Break down a topic into researchable questions c. Gain an overview of the topic and develop subtopics d. Develop a thesis statement		
	2 Develop information-seeking strategies by investigating a wide variety of print and electronic sources. a. Identify a variety of print and electronic resources including reference, periodicals, non-fiction, interviews, and media resources b. Use online catalog to locate print and non-print information	3.6	
3 Access information resources to locate specific information. a. Locate information in print and electronic references b. Locate information in online databases c. Conduct keyword and subject searches d. Narrow down web searches	3.7		

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standard #3 Information Literacy Research Process	Related Technology Standard	Assessment
8	4 Evaluate resources for their appropriateness, select the best and extract the most relevant information. a. Highlight relevant information b. Create note cards c. Use criteria to evaluate websites	3.8, 3.10	Assessment correlates to Instructional Technology Standard 3.
	5 Organize new information from multiple sources to construct a knowledge product that communicates the results of their research. a. Develop organizational strategies b. Develop a works cited page c. Discuss the ethical and legal implications of plagiarism and intellectual property d. Develop a product using multiple resources to answer questions about a topic	3.9	
	6 Assess the final and the research process including both self- and peer evaluation.		

Boldfaced items identify new skills for current grade level.

Tantasqua Regional & Union 61 School Districts

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GRADE 9 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
9	<p>1.35 Demonstrate file management skills (e.g., create folders, navigate between different drives, install new software, compress and expand files as needed, download files as appropriate)</p> <p>1.36 Run multiple applications simultaneously, alternating among them</p> <p>1.39 Save, (retrieve, load, and import) a word-processed document in different file formats (e.g., RTF, HTML)</p> <p>1.40 Use a variety of external peripherals including new and emerging technologies (e.g., printers, Zip drives, scanner, digital camera, USB drive) and understand how they connect to a computer</p> <p>1.41 Perform efficient keyboarding technique</p> <p>1.42 Import/export and link data between word-processed document and other applications</p> <p>1.43 Duplicate database structure without data (e.g., setting up fields and tables)</p> <p>1.52 In a browser, organize bookmarks into folders for further reference</p> <p>1.53 Know how to select and use search engines and understand the differences between search engines</p>	<p>Most file management skills are limited to exposure only.</p> <p>Project based and informal teacher observation with the need for a more formal protocol to be developed.</p>

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
9	1.54 Explain effective search strategies to locate and retrieve electronic information (e.g., understand and use syntax and Boolean logic operators)	Project based and informal teacher observation with the need for a more formal protocol to be developed.
	1.55 Using e-mail, create an address book (Use of e-mail is at district teacher discretion and conforming to district Internet policy and may be a class-wide activity if students do not have individual accounts)	
	1.56 Share files as attachments in an e-mail message (e.g., text, graphics, sound) (Use of e-mail is at district discretion)	
	1.57 Create a multimedia presentation, desktop-published report, or Web page that incorporates data from other files	
	1.58 Create and manipulate illustrations using a drawing or painting program (e.g., adjust scale, size, shape)	
	1.59 Identify capabilities of technology resources (e.g., Internet, inter-library loan) and understand how they can be used for lifelong learning	
	1.60 Select the appropriate technology tool for a task	

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
9	2.16 Identify ways in which technology is used in the workplace and in society	<ul style="list-style-type: none"> • Project based and informal teacher observation with the need for a more formal protocol to be developed. • Parents and students sign off on the school’s Acceptable Use Policy.
	2.17 Demonstrate a clear understanding of the school’s Acceptable Use Policy	
	2.18 Explain laws restricting use of copyrighted materials on the Internet	
	2.19 Explain how to evaluate electronic sources of information. (See Integrated <i>Validating a Web site</i>)	
	2.20 Cite electronic sources correctly	
	2.21 Understand issues of ergonomics and practice safe use of equipment	

Boldfaced items identify new skills for current grade level.

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
9	3.12 In conducting research use all appropriate electronic sources (e.g., Web sites, online periodical databases, online catalogs)	Project based and informal teacher observation with the need for a more formal protocol to be developed.
	3.13 Integrate (with correct citations) electronic research results into a research project	
	3.14 Routinely evaluate Web sites for authenticity when using them	
	3.15 Present information, ideas, and results of work using any of a variety of communications technologies (e.g., multimedia presentations, Web pages, videotapes, desktop-published documents)	
	3.17 Import graphics, photos, and other media into report or presentation, citing sources appropriately	

Boldfaced items identify new skills for current grade level.

Tantasqua Regional & Union 61 School Districts

Brimfield – Brookfield – Holland – Sturbridge – Wales

GRADE 10 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
10	1.35 Demonstrate file management skills (e.g., create folders, navigate between different drives, install new software, compress and expand files as needed, download files as appropriate)	<ul style="list-style-type: none"> • Most file management skills are limited to exposure only. • Project based and informal teacher observation with the need for a more formal protocol to be developed.
	1.36 Run multiple applications simultaneously, alternating among them	
	1.38 Identify and use methods for transferring and downloading, and converting graphic, sound, and video files, identify and use methods for converting graphic, sound, and video files in specialized classes, and use different graphic file formats where appropriate (e.g., PICT, TIFF, JPEG)	
	1.39 Save, (retrieve, load, and import) a word-processed document in different file formats (e.g., RTF, HTML).	
	1.40 Use a variety of external peripherals including new and emerging technologies (e.g., printers, Zip drives, scanner, digital camera, USB drive) and understand how they connect to a computer	
	1.41 Perform efficient keyboarding technique	
	1.42 Import/export and link data between word-processed document and other applications	
	1.43 Duplicate database structure without data. (e.g., setting up fields and tables)	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
10	1.46 Use advanced formatting features of a spreadsheet application (e.g., reposition columns and rows, add and name worksheets)	Project based and informal teacher observation with the need for a more formal protocol to be developed.
	1.47 Use formulas in a spreadsheet application	
	1.48 Import/export data between spreadsheet and other applications	
	1.49 Customize formatting of charts or graphs created in spreadsheet	
	1.50 Define and use functions of a spreadsheet such as sort, filter, find	
	1.51 In a spreadsheet application, use various number formats (e.g., scientific notation, percentages, exponents) as appropriate	
	1.52 In a browser, organize bookmarks into folders for further reference	
	1.53 Know how to select and use search engines. Understand the differences between search engines	
	1.54 Explain effective search strategies to locate and retrieve electronic information (e.g., understand and use syntax and Boolean logic operators)	
	1.55 Using e-mail, create an address book. (Use of e-mail is at district discretion and may be a class-wide activity if students do not have individual accounts)	
	1.56 Share files as attachments in an e-mail message (e.g., text, graphics, sound) (Use of e-mail is at district discretion)	
	1.57 Create a multimedia presentation, desktop-published report, or Web page that incorporates data from other files	
	1.58 Create and manipulate illustrations using a drawing or painting program (e.g., adjust scale, size, shape)	
	1.59 Identify capabilities of technology resources (e.g., Internet, inter-library loan) and understand how they can be used for lifelong learning	
1.60 Select the appropriate technology tool for a task		

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
10	2.16 Identify ways in which technology is used in the workplace and in society	Project based and informal teacher observation with the need for a more formal protocol to be developed.
	2.17 Demonstrate a clear understanding of the school’s Acceptable Use Policy	
	2.18 Explain laws restricting use of copyrighted materials on the Internet	
	2.19 Explain how to evaluate electronic sources of information. (See <i>Integrated Validating a Web site</i>)	
	2.20 Cite electronic sources correctly	
	2.21 Understand issues of ergonomics and practice safe use of equipment	

Boldfaced items identify new skills for current grade level.

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
10	3.12 In conducting research use all appropriate electronic sources (e.g., Web sites, online periodical databases, online catalogs)	Project based and informal teacher observation with the need for a more formal protocol to be developed.
	3.13 Integrate (with correct citations) electronic research results into a research project	
	3.14 Routinely evaluate Web sites for authenticity when using them	
	3.15 Present information, ideas, and results of work using any of a variety of communications technologies (e.g., multimedia presentations, Web pages, videotapes, desktop-published documents)	
	3.16 Collect, organize, analyze, and graphically present data using the most appropriate tools (e.g., spreadsheet, database, graphing, and concept-mapping tools)	
	3.17 Import graphics, photos, and other media into report or presentation, citing sources appropriately	
	3.19 Demonstrate how specialized technology tools can be used for problem-solving, decision-making, and creativity (e.g., simulation software, environmental probes, computer-aided design, geographic information systems, dynamic geometric software, graphing calculators, art and music composition software)	

Boldfaced items identify new skills for current grade level.

Tantasqua Regional & Union 61 School Districts

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GRADE 11 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
11	1.35 Demonstrate file management skills (e.g., create folders, navigate between different drives, install new software, compress and expand files as needed, download files as appropriate).	<ul style="list-style-type: none"> • Most file management skills are limited to exposure only. • Project based and informal teacher observation with the need for a more formal protocol to be developed.
	1.36 Run multiple applications simultaneously, alternating among them.	
	1.37 Resolve commonly occurring error messages, resolve simple hardware and software problems as they occur (e.g., frozen screen, disk error, printing problems), and perform general hardware/software PC maintenance (e.g., deleting cookies and temporary Internet files, defrag, cleaning mouse/keyboard/monitor).	
	1.38 Identify and use methods for transferring, downloading, and converting graphic, sound, and video files and identify and use methods for converting graphic, sound, and video files in specialized classes. Use different graphic file formats where appropriate (e.g., PICT, TIFF, JPEG).	
	1.39 Save, (retrieve, load, and import) a word-processed document in different file formats (e.g., RTF, HTML).	
	1.40 Use a variety of external peripherals including new and emerging technologies (e.g., printers, Zip drives, scanner, digital camera, USB drive) and understand how they connect to a computer.	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
11	1.41 Perform efficient keyboarding technique	Project based and informal teacher observation with the need for a more formal protocol to be developed.
	1.42 Import/export and link data between word-processed document and other applications	
	1.43 Duplicate database structure without data. (e.g., setting up fields and tables)	
	1.46 Use advanced formatting features of a spreadsheet application (e.g., reposition columns and rows, add and name worksheets)	
	1.47 Use formulas in a spreadsheet application	
	1.48 Import/export data between spreadsheet and other applications	
	1.49 Customize formatting of charts or graphs created in spreadsheet	
	1.50 Define and use functions of a spreadsheet such as sort, filter, find	
	1.51 In a spreadsheet application, use various number formats (e.g., scientific notation, percentages, exponents) as appropriate	
	1.52 In a browser, organize bookmarks into folders for further reference	
	1.53 Know how to select and use search engines and understand the differences between search engines	
	1.54 Explain effective search strategies to locate and retrieve electronic information (e.g., understand and use syntax and Boolean logic operators)	
	1.55 Using e-mail, create an address book (Use of e-mail is at district discretion and may be a class-wide activity if students do not have individual accounts)	
	1.56 Share files as attachments in an e-mail message (e.g., text, graphics, sound) (Use of e-mail is at district discretion)	
	1.57 Create a multimedia presentation, desktop-published report, or Web page that incorporates data from other files	
1.58 Create and manipulate illustrations using a drawing or painting program (e.g., adjust scale, size, shape)		

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
11	1.59 Identify capabilities of technology resources (e.g., Internet, inter-library loan) and understand how they can be used for lifelong learning.	
	1.60 Select the appropriate technology tool for a task	

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
11	2.16 Identify ways in which technology is used in the workplace and in society	Project based and informal teacher observation with the need for a more formal protocol to be developed.
	2.17 Demonstrate a clear understanding of the school’s Acceptable Use Policy	
	2.18 Explain laws restricting use of copyrighted materials on the Internet	
	2.19 Explain how to evaluate electronic sources of information. (See <i>Integrated Validating a Web site</i>)	
	2.20 Cite electronic sources correctly	
	2.21 Understand issues of ergonomics and practice safe use of equipment	

Boldfaced items identify new skills for current grade level.

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
11	3.12 In conducting research use all appropriate electronic sources (e.g., Web sites, online periodical databases, online catalogs)	Project based and informal teacher observation with the need for a more formal protocol to be developed.
	3.13 Integrate (with correct citations) electronic research results into a research project	
	3.14 Routinely evaluate Web sites for authenticity when using them.	
	3.15 Present information, ideas, and results of work using any of a variety of communications technologies (e.g., multimedia presentations, Web pages, videotapes, desktop-published documents)	
	3.16 Collect, organize, analyze, and graphically present data using the most appropriate tools (e.g., spreadsheet, database, graphing, and concept-mapping tools)	
	3.17 Import graphics, photos, and other media into report or presentation, citing sources appropriately	

Boldfaced items identify new skills for current grade level.

Tantasqua Regional & Union 61 School Districts

Brimfield – Brookfield – Holland – Sturbridge – Wales

GRADE 12 EDUCATIONAL TECHNOLOGY MILESTONES

Standard 1: Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
12	1.35 Demonstrate file management skills (e.g., create folders, navigate between different drives, install new software, compress and expand files as needed, download files as appropriate)	<ul style="list-style-type: none"> • Most file management skills are limited to exposure only. • Project based and informal teacher observation with the need for a more formal protocol to be developed.
	1.36 Run multiple applications simultaneously, alternating among them	
	1.37 Resolve commonly occurring error messages, resolve simple hardware and software problems as they occur (e.g., frozen screen, disk error, printing problems), and perform general hardware/software PC maintenance (e.g., deleting cookies and temporary Internet files, defrag, cleaning mouse/keyboard/monitor)	
	1.38 Identify and use methods for transferring, downloading, and converting graphic, sound, and video files, identify and use methods for converting graphic, sound, and video files in specialized classes, and use different graphic file formats where appropriate (e.g., PICT, TIFF, JPEG)	
	1.39 Save, (retrieve, load, and import) a word-processed document in different file formats (e.g., RTF, HTML)	
	1.40 Use a variety of external peripherals including new and emerging technologies (e.g., printers, Zip drives, scanner, digital camera, USB drive) and understand how they connect to a computer	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
12	1.41 Perform efficient keyboarding technique	Project based and informal teacher observation with the need for a more formal protocol to be developed.
	1.42 Import/export and link data between word-processed document and other applications	
	1.43 Duplicate database structure without data (e.g., setting up fields and tables)	
	1.44 Use features of a database program such as mailing labels and mail merges	Database features such as mailing labels and mail merges are assessed in a word processing program.
	1.45 Import/export and link data between database and other applications	Project based and informal teacher observation with the need for a more formal protocol to be developed.
	1.46 Use advanced formatting features of a spreadsheet application (e.g., reposition columns and rows, add and name worksheets)	
	1.47 Use formulas in a spreadsheet application	
	1.48 Import/export data between spreadsheet and other applications	
	1.49 Customize formatting of charts or graphs created in spreadsheet	
	1.50 Define and use functions of a spreadsheet such as sort, filter, find	
	1.51 In a spreadsheet application, use various number formats (e.g., scientific notation, percentages, exponents) as appropriate	
	1.52 In a browser, organize bookmarks into folders for further reference	
	1.53 Know how to select and use search engines and understand the differences between search engines	
	1.54 Explain effective search strategies to locate and retrieve electronic information (e.g., understand and use syntax and Boolean logic operators)	
	1.55 Using e-mail, create an address book (Use of e-mail is at district discretion and may be a class-wide activity if students do not have individual accounts)	
	1.56 Share files as attachments in an e-mail message (e.g., text, graphics, sound) (Use of e-mail is at district discretion)	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
12	1.57 Create a multimedia presentation, desktop-published report, or Web page that incorporates data from other files	
	1.58 Create and manipulate illustrations using a drawing or painting program (e.g., adjust scale, size, shape)	Project based and informal teacher observation with the need for a more formal policy to be developed.
	1.59 Identify capabilities of technology resources (e.g., Internet, inter-library loan) and understand how they can be used for lifelong learning	
	1.60 Select the appropriate technology tool for a task	

Boldfaced items identify new skills for current grade level.

Standard 2: Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
12	2.16 Identify ways in which technology is used in the workplace and in society	Project based and informal teacher observation with the need for a more formal policy to be developed.
	2.17 Demonstrate a clear understanding of the school’s Acceptable Use Policy	
	2.18 Explain laws restricting use of copyrighted materials on the Internet	
	2.19 Explain how to evaluate electronic sources of information. (See <i>Integrated Validating a Web site</i>)	
	2.20 Cite electronic sources correctly	
	2.21 Understand issues of ergonomics and practice safe use of equipment	

Boldfaced items identify new skills for current grade level.

Standard 3: Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
12	3.12 In conducting research use all appropriate electronic sources (e.g., Web sites, online periodical databases, online catalogs)	
	3.13 Integrate (with correct citations) electronic research results into a research project	
	3.14 Routinely evaluate Web sites for authenticity when using them	
	3.15 Present information, ideas, and results of work using any of a variety of communications technologies (e.g., multimedia presentations, Web pages, videotapes, desktop-published documents)	
	3.16 Collect, organize, analyze, and graphically present data using the most appropriate tools (e.g., spreadsheet, database, graphing, and concept-mapping tools)	
	3.17 Import graphics, photos, and other media into report or presentation, citing sources appropriately	
	3.18 Create multiple links among various pieces of information residing in different applications (e.g., a chart imported from a spreadsheet into a word-processed report can be linked to update automatically when the data is changed in the spreadsheet)	
	3.19 Demonstrate how specialized technology tools can be used for problem-solving, decision-making, and creativity (e.g., simulation software, environmental probes, computer-aided design, geographic information systems, dynamic geometric software, graphing calculators, art and music composition software)	
	3.20 Demonstrate the function of electronic conferencing tools such as Internet bulletin boards, listserv, electronic classrooms, and interactive video	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standards – Performance Indicators (Continue to address earlier skills as needed.)	Assessment
12	3.21 At discretion of district, exchange e-mail independently	

Boldfaced items identify new skills for current grade level.

Standard 3/Information Literacy

Grade Level	Instructional Technology Standard #3 Information Literacy Research Process	Related Technology Standard	Assessment
12	(Continue to address earlier skills as needed) By the end of 12 th grade students should be able to utilize a process, such as Big6™, to locate, use, and evaluate information:		Assessment correlates to Instructional Technology Standard 3.
	1 Survey an information topic by defining the problem and identifying the information needed.	3.12	
	2 Develop information-seeking strategies by investigating a wide variety of print and electronic sources. a. Differentiate among types of searches (subject, keyword, search engines, directories, metasearches, real word searches) b. Compare and contrast information from online databases with information from other Internet sources.	3.12	
	3 Access information resources to locate specific information. a. Use subject references to locate information.	3.12, 3.13	
	4 Evaluate resources for their appropriateness, select the best and extract the most relevant information. a. Use evaluative criteria to compare and contrast websites.	3.14, 3.17	

Boldfaced items identify new skills for current grade level.

Grade Level	Instructional Technology Standard #3 Information Literacy Research Process	Related Technology Standard	Assessment
12	5 Organize new information from multiple sources to construct a knowledge product that communicates the results of their research. a. Develop organizational strategies b. Complete a research paper or other major project that includes a thesis statement and that requires citing of sources. c.. Present information through a variety of other formats such as PowerPoint or video presentations. d. Defend a point-of-view through a debate or other means. e. Discuss plagiarism and intellectual property	3.13, 3.15, 3.16	Assessment correlates to Instructional Technology Standard 3.
	6 Assess the final and the research process including both self- and peer evaluation.		

Boldfaced items identify new skills for current grade level.