Michigan Educational Technology Standards (METS) 2009 - PK-8 Checklist by Grade Levels

O = Teacher Observation	P = Portfolio Evidence	A = Formal Assessment	C = Technology Literacy Class

Grades PK through 2 –Technology Standards and Expectations – (prior to completing Grade 2)

	PK	K	1	2					
PK_2.CI Creativity and Innovation - By the end of Grade 2 each student will:	**PK**	**K**	**1**	**2**					
1. use a variety of digital tools (e.g., word processors, drawing tools, simulations, presentation software, graphical organizers) to learn, create, and convey original ideas or illustrate concepts									
PK_2.CC. Communication and Collaboration - By the end of Grade 2 each student will:	**PK**	**K**	**1**	**2**					
1. work together when using digital tools (e.g., word processor, drawing, presentation software) to convey ideas or illustrate simple concepts relating to a specified project									
2. use a variety of developmentally appropriate digital tools (e.g., word processors, paint programs) to communicate ideas to classmates, families, and others									
PK_2.RI. Research and Information Fluency - By the end of Grade 2 each student will:	**PK**	**K**	**1**	**2**					
1. interact with internet based resources									
2. use digital resources (e.g., dictionaries, encyclopedias, graphs, graphical organizers) to locate and interpret information relating to a specific curricular topic, with assistance from teachers, school library media specialists, parents, or student partners									
PK_2.CT. Critical Thinking, Problem Solving, and Decision Making - By the end of Grade 2 each student will:	**PK**	**K**	**1**	**2**					
1. explain ways that technology can be used to solve problems (e.g., cell phones, traffic lights, GPS units)									
2. use digital resources (e.g., dictionaries, encyclopedias, search engines, web sites) to solve developmentally appropriate problems, with assistance from teachers, parents, school media specialists, or student partners									
PK_2.DC. Digital Citizenship - By the end of Grade 2 each student will:	**PK**	**K**	**1**	**2**					
1. describe appropriate and inappropriate uses of technology (e.g., computers, internet, e-mail, cell phones) and describe consequences of inappropriate uses									
2. know the Michigan Cyber Safety Initiative's three rules (Keep Safe, Keep Away, Keep Telling)									
3. identify personal information that should not be shared on the Internet (e.g. name, address, phone number)									
4. know to inform a trusted adult if they receive or view an online communication which makes them feel uncomfortable, or if someone whom they don't know is trying to communicate with them or asking for personal information									
PK_2.TC. Technology Operations and Concepts - By the end of Grade 2 each student will:	**PK**	**K**	**1**	**2**					
1. discuss advantages and disadvantages of using technology									
2. be able to use basic menu commands to perform common operations (e.g., open, close, save, print)									
3. recognize, name, and label the major hardware components in a computer system (e.g., computer, monitor, keyboard, mouse, printer)									
4. discuss the basic care for computer hardware and various media types (e.g., CDs, DVDs, videotapes)									
5. use developmentally appropriate and accurate terminology when talking about technology									
6. understand that technology is a tool to help him/her complete a task, and is a source of information, learning, and entertainment									
7. demonstrate the ability to navigate in virtual environments (e.g., electronic books, games, simulation software, web sites)									

Michigan Educational Technology Standards (METS) 2009 - 3rd to 5th Checklist

O = Teacher Observation	P = Portfolio Evidence	A = Formal Assessment	C = Technology Literacy Class

Grades Three through Five – Technology Standards and Expectations – (prior to completing Grade 5)

3_5.CI. Creativity and Innovation - By the end of Grade 5 each student will:				3	4	5				
1. produce a media-rich digital project aligned to state curriculum standards (e.g., fable, folk tale, mystery, tall tale, historical fiction)										
2. use a variety of technology tools and applications to demonstrate their creativity by creating or modifying works of art, music, movies, or presentations										
3. participate in discussions about technologies (past, present, and future) to understand these developments are the result of human creativity										
3_5.CC. Communication and Collaboration - By the end of Grade 5 each student will:				3	4	5				
1. use digital communication tools (e.g., e-mail, wikis, blogs, IM, chat rooms, videoconferencing, Moodle, Blackboard) and online resources for group learning projects										
2. identify how different software applications may be used to share similar information, based on the intended audience (e.g., presentations for classmates, newsletters for parents)										
3. use a variety of media and formats to create and edit products (e.g., presentations, newsletters, brochures, web pages) to communicate information and ideas to various audiences										
3_5.RI. Research and Information Fluency - By the end of Grade 5 each student will:				3	4	5				
1. identify search strategies for locating information with support, from teachers and school library media specialists										
2. use digital tools to find, organize, analyze, synthesize, and evaluate information										
3. understand and discuss that web sites and digital resources may contain inaccurate or biased information										
4. understand that using information from a single internet source might result in the reporting of erroneous facts and that multiple sources should always be researched										
3_5.CT. Critical Thinking, Problem Solving, and Decision Making - By the end of Grade 5 each student will:				3	4	5				
1. use digital resources to access information that can assist them in making informed decisions about everyday matters (e.g., which movie to see, which product to purchase)										
2. use information and communication technology tools (e.g., calculators, probes, videos, DVDs, educational software) to collect, organize, and evaluate information to assist with solving problems										
3. use digital resources to identify and investigate a state, national, or global issue (e.g., global warming, economy, environment)										

Michigan Educational Technology Standards (METS) 2009 – 3rd to 5th Checklist											
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Grades Three through Five – Technology Standards and Expectations – (prior to completing Grade 5)											
3_5.DC. Digital Citizenship - By the end of Grade 5 each student will:						**3**	**4**	**5**			
1. discuss scenarios involving acceptable and unacceptable uses of technology (e.g., file-sharing, social networking, text messaging, cyber bullying, plagiarism)											
2. recognize issues involving ethical use of information (e.g., copyright adherence, source citation)											
3. describe precautions surrounding personal safety that should be taken when online											
4. identify the types of personal information that should not be given out on the Internet (name, address, phone number, picture, school name)											
3_5.TC. Technology Operations and Concepts - By the end of Grade 5 each student will:						**3**	**4**	**5**			
1. use basic input and output devices (e.g., printers, scanners, digital cameras, video recorders, projectors)											
2. describe ways technology has changed life at school and at home											
3. understand and discuss how assistive technologies can benefit all individuals											
4. demonstrate proper care in the use of computer hardware, software, peripherals, and storage media											
5. know how to exchange files with other students using technology (e.g., network file sharing, flash drives)											

Michigan Educational Technology Standards (METS) 2009 - 6th to 8th Checklist

O = Teacher Observation	P = Portfolio Evidence	A = Formal Assessment	C = Technology Literacy Class

Grades Six through Eight – Technology Standards and Expectations – (prior to completing Grade 8)

							6	7	8
6_8.CI. Creativity and Innovation – By the end of Grade 8 each student will:							6	7	8
1. apply common software features (e.g., spellchecker, thesaurus, formulas, charts, graphics, sounds) to enhance communication with an audience and to support creativity									
2. create an original project (e.g., presentation, web page, newsletter, information brochure) using a variety of media (e.g., animations, graphs, charts, audio, graphics, video) to present content information to an audience									
3. illustrate a content-related concept using a model, simulation, or concept-mapping software									
6_8.CC. Communication and Collaboration – By the end of Grade 8 each student will:							6	7	8
1. use digital resources (e.g., discussion groups, blogs, podcasts, videoconferences, Moodle, Blackboard) to collaborate with peers, experts, and other audiences									
2. use collaborative digital tools to explore common curriculum content with learners from other cultures									
3. identify effective uses of technology to support communication with peers, family, or school personnel									
6_8.RI. Research and Information Fluency – By the end of Grade 8 each student will:							6	7	8
1. use a variety of digital resources to locate information									
2. evaluate information from online resources for accuracy and bias									
3. understand that using information from a single internet source might result in the reporting of erroneous facts and that multiple sources should always be researched									
4. identify types of web sites based on their domain names (e.g., edu, com, org, gov, net)									
5. employ data-collection technologies (e.g., probes, handheld devices, GPS units, geographic mapping systems) to gather, view, and analyze the results for a content-related problem									
6_8.CT. Critical Thinking, Problem Solving, and Decision Making - By the end of Grade 8 each student will:							6	7	8
1. use databases or spreadsheets to make predictions, develop strategies, and evaluate decisions to assist with solving a problem									
2. evaluate available digital resources and select the most appropriate application to accomplish a specific task (e, g., word processor, table, outline, spreadsheet, presentation program)									
3. gather data, examine patterns, and apply information for decision making using available digital resources									
4. describe strategies for solving routine hardware and software problems									

Michigan Educational Technology Standards (METS) 2009 - 6th to 8th Checklist

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Grades Six through Eight – Technology Standards and Expectations – (prior to completing Grade 8)

							6	7	8
6_8.DC. Digital Citizenship – By the end of Grade 8 each student will:									
1. provide accurate citations when referencing information sources									
2. discuss issues related to acceptable and responsible use of technology (e.g., privacy, security, copyright, plagiarism, viruses, file-sharing)									
3. discuss the consequences related to unethical use of information and communication technologies									
4. discuss possible societal impact of technology in the future and reflect on the importance of technology in the past									
5. create media-rich presentations for other students on the appropriate and ethical use of digital tools and resources									
6. discuss the long term ramifications (digital footprint) of participating in questionable online activities (e.g., posting photos of risqué poses or underage drinking, making threats to others)									
7. describe the potential risks and dangers associated with online communications									
6_8.TC. Technology Operations and Concepts - By the end of Grade 8 each student will:							6	7	8
1. identify file formats for a variety of applications (e.g., doc, xls, pdf, txt, jpg, mp3)									
2. use a variety of technology tools (e.g., dictionary, thesaurus, grammar-checker, calculator) to maximize the accuracy of technology-produced materials									
3. perform queries on existing databases									
4. know how to create and use various functions available in a database (e.g., filtering, sorting, charts)									
5. identify a variety of information storage devices (e.g., CDs, DVDs, flash drives, SD cards) and provide rationales for using a certain device for a specific purpose									
6. use accurate technology terminology									
7. use technology to identify and explore various occupations or careers, especially those related to science, technology, engineering, and mathematics									
8. discuss possible uses of technology to support personal pursuits and lifelong learning									
9. understand and discuss how assistive technologies can benefit all individuals									
10. discuss security issues related to e-commerce									

Michigan Educational Technology Standards (METS) 2009 - 9th to 12th Checklist

O = Teacher Observation	P = Portfolio Evidence	A = Formal Assessment	C = Technology Literacy Class

Grades Nine through Twelve – Technology Standards and Expectations – (prior to the completion of grade 12)

	9	10	11	12	
9_12.CI. Creativity and Innovation – By the end of Grade 12 each student will:					
1. apply advanced software features (e.g. built-in thesaurus, templates, styles) to redesign the appearance of word processing documents, spreadsheets, and presentations					
2. create a web page (e.g., Dreamweaver, iGoogle, Kompozer)					
3. use a variety of media and formats to design, develop, publish, and present projects (e.g., newsletters, web sites, presentations, photo galleries)					
9_12.CC. Communication and Collaboration - By the end of Grade 12 each student will:	9	10	11	12	
1. identify various collaboration technologies and describe their use (e.g., desktop conferencing, listserv, blog, wiki)					
2. use available technologies (e.g., desktop conferencing, e-mail, videoconferencing, instant messaging) to communicate with others on a class assignment or project					
3. collaborate in content-related projects that integrate a variety of media (e.g., print, audio, video, graphic, simulations, and models)					
4. plan and implement a collaborative project using telecommunications tools (e.g., ePals, discussion boards, online groups, groupware, interactive web sites, videoconferencing)					
5. describe the potential risks and dangers associated with online communications					
6. use technology tools for managing and communicating personal information (e.g., finances, contact information, schedules, purchases, correspondence)					
9_12.RI. Research and Information Fluency – By the end of Grade 12 each student will:	9	10	11	12	
1. develop a plan to gather information using various research strategies (e.g., interviews, questionnaires, experiments, online surveys)					
2. identify, evaluate, and select appropriate online sources to answer content related questions					
3. demonstrate the ability to use library and online databases for accessing information (e. g. MEL, Proquest, Infosource, United Streaming)					
4. distinguish between fact, opinion, point of view, and inference					
5. evaluate information found in selected online sources on the basis of accuracy and validity					
6. evaluate resources for stereotyping, prejudice, and misrepresentation					
7. understand that using information from a single internet source might result in the reporting of erroneous facts and that multiple sources must always be researched					
8. research examples of inappropriate use of technologies and participate in related classroom activities (e.g., debates, reports, mock trials, presentations)					

Michigan Educational Technology Standards (METS) 2009 - 9th to 12th Checklist

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Grades Nine through Twelve – Technology Standards and Expectations – (prior to the completion of grade 12)

	9	10	11	12	
9_12.CT. Critical Thinking, Problem Solving, and Decision Making - By the end of Grade 12 each student will:					
1. use digital resources (e.g., educational software, simulations, models) for problem solving and independent learning					
2. analyze the capabilities and limitations of digital resources and evaluate their potential to address personal, social, lifelong learning, and career needs					
3. devise a research question or hypothesis using information and communication technology resources, analyze the findings to make a decision based on the findings, and report the results					
9_12.DC. Digital Citizenship – By the end of Grade 12 each student will:	**9**	**10**	**11**	**12**	
1. identify legal and ethical issues related to the use of information and communication technologies (e.g., properly selecting, acquiring, and citing resources)					
2. discuss possible long-range effects of unethical uses of technology (e.g., virus spreading, file pirating, hacking) on cultures and society					
3. discuss and demonstrate proper netiquette in online communications					
4. identify ways that individuals can protect their technology systems from unethical or unscrupulous users					
5. create appropriate citations for resources when presenting research findings					
6. discuss and adhere to fair use policies and copyright guidelines					
9_12.TC. Technology Operations and Concepts - By the end of Grade 12 each student will:	**9**	**10**	**11**	**12**	
1. complete at least one online credit, or non-credit, course or online learning experience					
2. use an online tutorial and discuss the benefits and disadvantages of this method of learning					
3. explore career opportunities, especially those related to science, technology, engineering, and mathematics and identify their related technology skill requirements					
4. describe uses of various existing or emerging technology resources (e.g., podcasting, webcasting, videoconferencing, online file sharing, global positioning software)					
5. identify an example of an assistive technology and describe its purpose and use					
6. participate in a virtual environment as a strategy to build 21st century learning skills					
7. assess and solve hardware and software problems by using online help or other user documentation					
8. explain the differences between freeware, shareware, open source, and commercial software					
9. participate in experiences associated with technology-related careers					
10. identify common graphic, audio, and video file formats (e.g., jpeg, gif, bmp, mpeg, wav, wmv, mp3, flv, avi, pdf)					
11. understand and discuss how assistive technologies can benefit all individuals					
12. demonstrate how to import/export text, graphics, or audio files					
13. proofread and edit a document using an application's spelling and grammar checking functions					

Web Resources:

Each of the ISTE resources are © 2007 International Society for Technology in Education.
ISTE NETS for Students 2007
ISTE NETS for Students 2007 – Profiles for Technology (ICT) Literate Students
ISTE NETS for Students 2007 – Essential Conditions

All of the following resources are © 2004 Partnership for 21st Century Skills.
Framework for 21st Century Learning – The Partnership for 21st Century Skills has developed a vision for 21st century student success in the new global economy.
21st Century Standards
21st Century Assessment
21st Century Curriculum & Instruction
21st Century Professional Development
21st Century Learning Environments