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Denise Juneau
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The Office of Public Instruction (OPI) is pleased to release the Essential Learning Expectations (ELE) for Technology. The ELE were developed by Montana educators from June through December 2008. The ELE describe requisite content knowledge, abilities, and thinking/reasoning skills that students must comprehend and apply along the K-12 learning continuum. As standards are revised, the ELE will be developed for all content areas and at each grade level for students to successfully meet the standards and benchmarks.

For many years now, Montana educators have been asking for clarifications of the standards and for more details to assist with the development of local curriculum aligned to the standards. The ELE, while not mandatory, provide clear targets for student achievement that will assist all educators to meet the needs of students across the full spectrum from Special Education to Gifted and Talented Education.

K-12 CONTENT STANDARDS

What all Montana students will know, understand and be able to do when they graduate from high school, ready for work and postsecondary education.

BENCHMARKS

Check points along the K-12 continuum to assess student progress toward meeting standards.
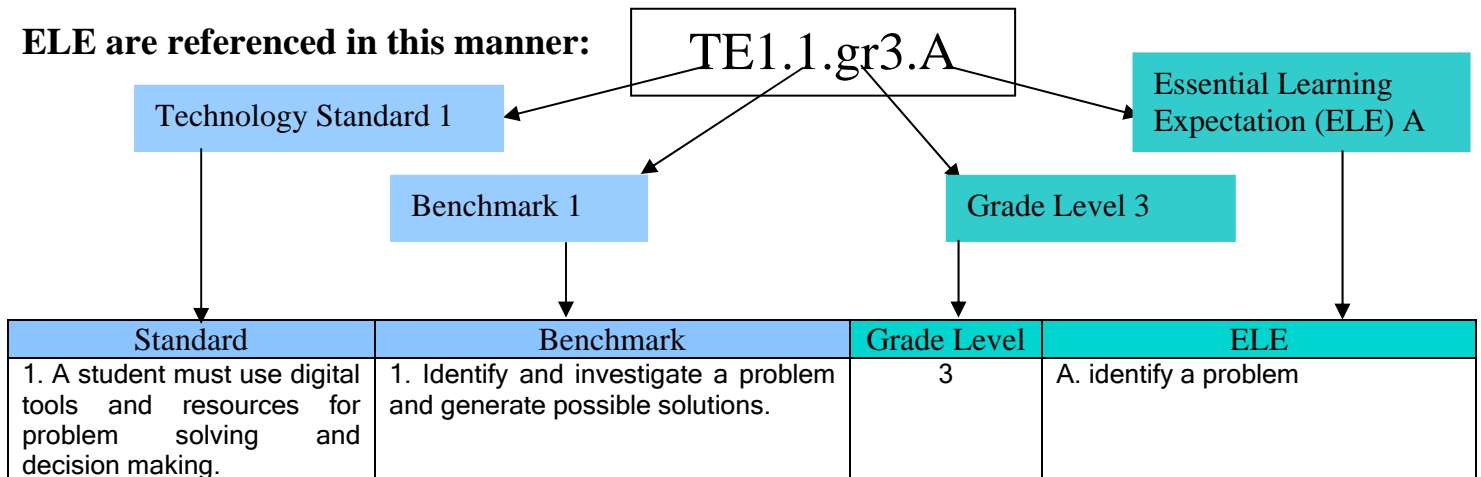
| End of Grade 4 | End of Grade 8 | Upon Graduation |

ESSENTIAL LEARNING EXPECTATIONS

The necessary content, context and thinking/reasoning skills students must comprehend and apply along the learning continuum.

| K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

ELE are referenced in this manner:

TE1.1.gr3.A

Technology Standard 1

Essential Learning Expectation (ELE) A

Benchmark 1

Grade Level 3

Standard	Benchmark	Grade Level	ELE
1. A student must use digital tools and resources for problem solving and decision making.	1. Identify and investigate a problem and generate possible solutions.	3	A. identify a problem

"It is the mission of the Office of Public Instruction to improve teaching and learning through communication, collaboration, advocacy, and accountability to those we serve."

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The following individuals participated in the Montana Technology Content Standards revision process:

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The following individuals participated in the creation of the Technology Essential Learning Expectations: (June 2008 – January 2009)

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MONTANA STANDARDS-BASED EDUCATION
TO IMPROVE LEARNING AND TEACHING

K-12 CONTENT STANDARDS

What all Montana students will know, understand and be able to do when they graduate from high school, ready for work and postsecondary education.

BENCHMARKS

Check points along the K-12 continuum to assess student progress toward meeting standards.

End of Grade 4	End of Grade 8	Upon Graduation

PERFORMANCE DESCRIPTORS

How well students apply knowledge, skills and abilities.

Novice			Nearing Proficiency			Proficient			Advanced		
Grade 4	Grade 8	Grade 12	Grade 4	Grade 8	Grade 12	Grade 4	Grade 8	Grade 12	Grade 4	Grade 8	Grade 12

ESSENTIAL LEARNING EXPECTATIONS

The necessary content, context and thinking/reasoning skills students must comprehend and apply along the learning continuum.

K	1	2	3	4	5	6	7	8	9	10	11	12

STANDARDS-BASED EDUCATION IMPLEMENTATION

Professional Development and Technical Assistance
Ongoing opportunities using statewide, regional and local delivery venues.

Model Curriculum	Research-Based Instructional Strategies	Model Classroom Assessment

EDUCATOR PREPARATION PROGRAMS

Initial and advanced educator preparation programs and professional development.

CHART KEY

Blue – Approved in Administrative Rules of Montana by the Montana Board of Public Education
Aqua – Approved by the Superintendent of Public Instruction
Lavender – Guidance and Regional Ongoing Professional Development
Green – Professional Educator Preparation Program Standards (PEPPS) and On-Site Review Process

Montana Instructional Alignment-Technology
Grade Level: Kindergarten

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Identify and investigate a problem and generate possible solutions.	A. identify a problem with teacher assistance B. investigate the problem using digital tools (e.g., create a survey, collect data, research a question) with teacher assistance C. generate possible solutions using digital tools with teacher assistance	digital tools, data		
2. Collect data and information using digital tools.	A. give an example of data B. collect data with a digital tool (e.g., digital thermometer, camera, probe, weather station, survey) with assistance C. collect information using digital tools (e.g., Internet, microscopes, database, CD/DVD) with assistance	digital tools, data		
3. Organize collected data and information using a variety of digital tools	A. name possible categories to be used for sorting data B. sort collected data using a digital tool (e.g., graphic organizer, spreadsheet, graphing software) with assistance C. organize information using digital tools (e.g., graphic organizers, graphs, pictures) with assistance			
4. Identify the accuracy, diversity, and point of view, including Montana American Indians, of digital information.	A. recognize, with assistance, that information from digital sources may contain inaccuracies B. use digital information that includes diverse perspectives, including information about Montana's American Indians			
5. Share information ethically and note sources.	*not applicable at this level*			

Montana Instructional Alignment-Technology
Grade Level: Kindergarten

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Content Standard 3. A student must apply digital tools and skills with creativity and innovation toexpress his/herself, construct knowledge and develop products and processes.

Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Identify and explore online collaboration and communication tools.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)	chat, IM, e-mail		
2. Identify and explore safe, legal, and responsible use of digital collaboration and communication tools.	A. discuss and follow district and school acceptable use policy B. discuss Internet safety: identity protection, bullying prevention, password protection, and personal safety	Acceptable Use Policy (AUP)		
3. Communicate the results of research and learning with others using digital tools.	A. observe and discuss digital presentations	digital presentation		
4. Explore how technology has expanded the learning environment beyond the traditional classroom.	A. establish a connection with others using a digital tool with assistance			

Montana Instructional Alignment-Technology
Grade Level: Kindergarten

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation toexpress his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use digital tools for personal expression.	A. use digital tools for personal expression (e.g., use a painting or graphics program to create a project)	digital tools		
2. Use various digital media to share information and tell stories.	A. explore various tools to create a digital picture B. create a picture using a digital tool C. tell a story about the picture	digital tools, digital media		
3. Use technology to discover connections between facts.	A. use technology to discover facts with assistance			
4, Understand ownership of digital media.	A. label student's work with their own name	digital media, copyright		
5. Use digital tools and skills to construct new personal understandings.	A. identify digital tools	digital tools		

Montana Instructional Alignment-Technology
Grade Level: Kindergarten

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation toexpress his/herself, construct knowledge and
     develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Show skills needed to use communication, information and processing technologies.	A. define and clarify the limitations of various media resources of the Fair Use Guidelines of the U.S. Copyright Law as it pertains to student projects. B. compare and contrast student options and choices regarding copyright of digital media	digital tools, power buttons, mouse, screen, keyboard, software, hardware		
2. Use appropriate terminology when communicating about current technology.	A. use appropriate vocabulary when communicating about current technology	digital tools, mouse, monitor, keyboard, cursor, online, e-mail, chat, IM (instant messaging), texting, acceptable use, wiki, blog		
3. Transfer current knowledge to learning of new technology skills.	A. Apply prior knowledge when learning different digital tools	digital tools		

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Montana Instructional Alignment-Technology
Grade Level: 1

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Identify and investigate a problem and generate possible solutions.	A. identify a problem with teacher assistance B. investigate the problem using digital tools (e.g., create a survey, collect data, research a question) with teacher assistance C. generate possible solutions using digital tools with teacher assistance	digital tools, data		
2. Collect data and information using digital tools.	A. give an example of data B. collect data with a digital tool (e.g., digital thermometer, camera, probe, weather station, survey) with assistance C. collect information using digital tools (e.g., Internet, microscopes, database, CD/DVD) with assistance	digital tools, data		
3. Organize collected data and information using a variety of digital tools.	A. list possible categories to be used for sorting data B. sort collected data using a digital tool (e.g., graphic organizer, spreadsheet, graphing software) with assistance C. organize information using digital tools (e.g., graphic organizers, graphs, pictures) with assistance	digital tools, data		
4. Identify the accuracy, diversity, and point of view, including Montana American Indians, of digital information.	A. recognize, with assistance, that information from digital sources may contain inaccuracies B. use digital information that includes diverse perspectives, including information about Montana's American Indians	digital information		
5, Use digital tools and skills to construct new personal understandings.	*not applicable at this level*			

Montana Instructional Alignment-Technology
Grade Level: 1

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Identify and explore online collaboration and communication tools.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)	chat, IM, e-mail		
2. Identify and explore safe, legal, and responsible use of digital collaboration and communication tools.	A. discuss and follow district and school acceptable use policy B. discuss Internet safety: identity protection, bullying prevention, password protection, and personal safety	Acceptable Use Policy		
3. Communicate the results of research and learning with others using digital tools.	A. observe and discuss digital presentations	digital presentation		
4. Explore how technology has expanded the learning environment beyond the traditional classroom.	A. establish a connection with others using a digital tool with assistance			

Montana Instructional Alignment-Technology
Grade Level: 1

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself construct knowledge and develop products and processes

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use digital tools for personal expression.	A. use digital tools for personal expression (e.g., use a painting or graphics program to create a project)	digital tools		
2. Use various digital media to share information and tell stories.	A. explore various digital tools to create an illustrated story B. create an illustrated story using a digital tool C. share the story	digital media		
3. Use technology to discover connections between facts.	A. use technology to discover facts with guidance			
4. Understand ownership of digital media.	B. identify self and others as digital authors	copyright		
5. Use digital tools and skills to construct new personal understandings.	A. explore the use of digital tools	digital tools		

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Montana Instructional Alignment-Technology
Grade Level: 1

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Show skills needed to use communication, information and processing technologies.	A. define and clarify the limitations of various media resources of the Fair Use Guidelines of the U.S. Copyright Law as it pertains to student projects. B. compare and contrast student options and choices regarding copyright of digital media	information and processing technologies		
2. Use appropriate terminology when communication about current technology.	A. use appropriate terminology when communicating about current technology	mouse, monitor, keyboard, cursor		
3. Transfer current knowledge to learning of new technology skills.	A. Apply prior knowledge when learning different digital tools	digital tools, mouse, monitor, keyboard, cursor, online, e-mail,chat, IM (instant messaging), texting, acceptable use, wiki, blog		

Montana Instructional Alignment-Technology
Grade Level: 2

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Identify and investigate a problem and generate possible solutions.	A. identify a problem with guidance B. investigate the problem using digital tools (e.g., create a survey, collect data, research a question) with guidance C. generate possible solutions using digital tools with guidance	digital tools, data		
2. Collect data and information using digital tools	A. give an example of data B. collect data with a digital tool (e.g., digital thermometer, camera, probe, weather station, survey) with guidance C. collect information using digital tools (e.g., Internet, microscopes, database, CD/DVD) with guidance	digital tools, data		
3. Organize collected data and information using a variety of digital tools	A. create and record categories to be used for organizing data B. organize collected data using a digital tool (e.g., graphic organizer, spreadsheet, graphing software) with guidance C. organize information using digital tools (e.g., graphic organizers, graphs, pictures) with guidance			
4. Identify the accuracy, diversity, and point of view, including Montana American Indians, of digital information.	A. recognize, with assistance, that information from digital sources may contain inaccuracies B. use digital information that includes diverse perspectives, including information about Montana's American Indians			
5. Use digital tools and skills to construct new personal understandings.	A. recognize that the work of others needs to be noted			

	Montana Instructional Alignment-Technology Grade Level: 2	

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express
his/herself, construct knowledge and develop products and processes.

Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Identify and explore online collaboration and communication tools.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)	chat, IM, e-mail		
2. Identify and explore safe, legal, and responsible use of digital collaboration and communication tools	A. discuss and follow district and school acceptable use policy B. discuss Internet safety: identity protection, bullying prevention, password protection, and personal safety	Acceptable Use Policy		
3. Communicate the results of research and learning with others using digital tools.	A. observe and discuss digital presentations			
4. Explore how technology has expanded the learning environment beyond the traditional classroom.	A. establish a connection with others using a digital tool with assistance			

Montana Instructional Alignment-Technology
Grade Level: 2

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself,
                construct knowledge and develop products and processes.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use digital tools for personal expression.	A. use digital tools for personal expression (e.g., use music, sound, or video programs to create a project)			
2. Use various digital media to share information and tell stories.	A. explore various digital tools to create a project B. create a project using a digital tool(s) C. share the project			
3. Use technology to discover connections between facts.	A. use technology to discover facts with guidance B. use technology to organize facts with assistance			
4. Understand ownership of digital media.	A. identify self and others as digital authors			
5. Use digital tools and skills to construct new personal understandings.	A. demonstrate the use of digital tools B. explain how digital tools are used in work and play			

Montana Instructional Alignment-Technology
Grade Level: 2

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Show skills needed to use communication, information and processing technologies.	A. define and clarify the limitations of various media resources of the Fair Use Guidelines of the U.S. Copyright Law as it pertains to student projects. B. compare and contrast student options and choices regarding copyright of digital media	digital tools, digital devises		
2. Use appropriate terminology when communication about current technology.	A. use appropriate terminology when communicating about current technology	digital tools, mouse, monitor, keyboard, cursor, online, e-mail,chat, IM (instant messaging), texting, acceptable use, wiki, blog		
3. Transfer current knowledge to learning of new technology skills.	A. Apply prior knowledge when learning different digital tools.			

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Montana Instructional Alignment-Technology
Grade Level: 3

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express
        his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Identify and investigate a problem and generate possible solutions.	A. identify a problem B. investigate the problem using digital tools (e-mail e.g., create a survey, collect data, research a question) with guidance C. generate possible solutions using digital tools with guidance	digital tools, data		
2. Collect data and information using digital tools	A. give an example of data B. collect data with a digital tool (e-mail e.g., digital thermometer, camera, probe, weather station, survey) with guidance C. collect information using digital tools (e-mail e.g., Internet, microscopes, database, CD/DVD) with guidance	digital tools, data		
3. Organize collected data and information using a variety of digital tools	A. decide how to record information, with guidance B. collect data and determine which information is useful, with guidance C. organize data into categories using a digital tool (e-mail e.g., graphic organizer, spreadsheet, graphing software), with guidance			

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. (continued) A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
4. Identify the accuracy, diversity, and point of view, including Montana American Indians, of digital information.	A. identify basic domain names (e-mail e.g., .com, .gov, .edu, .org) B. recognize authorship of a resource C. explain personal bias D. evaluate relevance and currency of information with guidance E. compare information from multiple sources, including digital sources F. identify the accuracy of digital information with guidance G. use digital information that includes diverse perspectives, including information about Montana's American Indians			
5. Share information ethically and note sources.	A. recognize that the work of others needs to be noted B. note the source of information used in a digital project			

Montana Instructional Alignment-Technology				
Grade Level: 3				

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Identify and explore online collaboration and communication tools.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)			
2. Identify and explore safe, legal, and responsible use of digital collaboration and communication tools	A. discuss and follow district and school acceptable use policy B. discuss and follow Internet safety: identity protection, bullying prevention, password protection, and personal safety	Acceptable Use Policy		
3. Communicate the results of research and learning with others using digital tools.	A. observe and discuss digital presentations	media		
4. Explore how technology has expanded the learning environment beyond the traditional classroom.	A. establish a connection with others using a digital tool with guidance			

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Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express
        his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to
        express his/herself, construct knowledge and develop products and processes.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use digital tools for personal expression.	A. use digital tools for personal expression (e-mail e.g., use music, sound, or video programs to create a project)			
2. Use various digital media to share information and tell stories.	A. explore digital tools to create a multimedia project B. create a multimedia project using a digital tool(s) C. share the project			
3. Use technology to discover connections between facts.	A. use technology to discover connections between facts, with assistance B. use technology to organize facts with guidance			
4. Understand ownership of digital media.	A. identify individuals' and groups' ownership of digital media			
5. Use digital tools and skills to construct new personal understandings.	A. demonstrate the use of digital tools B. explain how digital tools influence work and play			

Montana Instructional Alignment-Technology
Grade Level: 3

Content Standards
Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Show skills needed to use communication, information and processing technologies.	A. click on icons, buttons and menus to produce a desired outcome B. demonstrate developmentally appropriate keyboarding skills C. locate and correctly use basic parts of various digital devices (desktop computer, laptop computer, digital cameras, etc.) D. follow lab/classroom rules related to responsible use of digital equipment E. effectively use operating systems and user interfaces (file management, settings, control panel, etc.)			
2. Use appropriate terminology when communication about current technology.	A. use appropriate terminology when communicating about current technology	digital tools, mouse, monitor, keyboard, cursor, Global Positioning System (GPS,) Geographic Information System (GIS,) online, e-mail, chat, IM (instant messaging), texting, acceptable use, wiki, blog		
3. Transfer current knowledge to learning of new technology skills.	A. apply existing skills to explore the possible uses of a new digital tool (e-mail e.g., software, hardware)			

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express
  his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Identify and investigate a problem and generate possible solutions.	A. identify a problem B. investigate the problem using digital tools (e.g., create a survey, collect data, research a question) C. generate possible solutions using digital tools	digital tools, data		
2. Collect data and information using digital tools	A. give an example of data B. collect data with a digital tool (e.g., digital thermometer, camera, probe, weather station, survey) C. collect information using digital tools (e.g., Internet, microscopes, database, CD/DVD)	digital tools, data		
3. Organize collected data and information using a variety of digital tools	A. create and record categories to be used for organizing data B. organize collected data using a digital tool (e.g., graphic organizer, spreadsheet, graphing software) C. determine which information is useful D. decide how to record information E. organize information using a digital tool			

Montana Instructional Alignment-Technology
Grade Level: 4

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express
**   his/herself, construct knowledge and develop products and processes.**
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. (continued) A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
4. Identify the accuracy, diversity, and point of view, including Montana American Indians, of digital information.	A. explain the difference of basic domain names (e.g., .com, .gov, .edu, .org) B. recognize that all authors have a personal bias C. evaluate relevance and currency of information D. compare information from multiple sources, including digital sources E. identify the accuracy of digital information with guidance			
5. Share information ethically and note sources.	A. create projects using digital information ethically B. note digital sources used to complete projects			

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express
his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Identify and explore online collaboration and communication tools.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)			
2. Identify and explore safe, legal, and responsible use of digital collaboration and communication tools	A. discuss and follow district and school acceptable use policy B. discuss and follow Internet safety practices: identity protection, bullying prevention, password protection, and personal safety	Acceptable Use Policy		
3. Communicate the results of research and learning with others using digital tools.	A. observe and discuss digital presentations	media		
4. Explore how technology has expanded the learning environment beyond the traditional classroom.	A. establish a connection with others using a digital tool B. collaborate with others outside the classroom C. participate in a global learning environment with guidance	Global Learning Environment		

Montana Instructional Alignment-Technology Grade Level: 4				

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express
       his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself construct knowledge and develop products and processes.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use digital tools for personal expression.	A. use digital tools for personal expression (e.g., use music, sound, or video programs to create a project)			
2. Use various digital media to share information and tell stories.	A. explore various digital tools to create multimedia projects B. create multimedia projects using multiple digital tools C. share the projects with others			
3. Use technology to discover connections between facts.	A. use technology to discover facts B. use technology to organize facts C. use technology to discover connections between facts			

Montana Instructional Alignment-Technology Grade Level: 4				
Content Standards				
Content Standard 1. A student must use digital tools and resources for problem solving and decision making. **Content Standard 2. A student must collaborate and communicate globally in a digital environment.** **Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express** **his/herself, construct knowledge and develop products and processes.** **Content Standard 4. A student must possess a functional understanding of technology concepts and operations.**				
4. Understand ownership of digital media.	A. discuss and define the rights of the digital author	copyright		
5. Use digital tools and skills to construct new personal understandings.	A. evaluate how technology affects work and play (e.g., compare and contrast life with and without a digital tool) B. develop a new personal understanding using digital tools			

Montana Instructional Alignment-Technology
Grade Level: 4

Content Standards
Content Standard 1. A student must use digital tools and resources for problem solving and decision making.   **Content Standard 2. A student must collaborate and communicate globally in a digital environment.**   **Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express**   **his/herself, construct knowledge and develop products and processes.**   **Content Standard 4. A student must possess a functional understanding of technology concepts and operations.**

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark End of Grade 4	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Show skills needed to use communication, information and processing technologies.	A. click on icons, buttons and menus to produce a desired outcome B. demonstrate developmentally appropriate keyboarding skills C. locate and correctly use parts of various digital devices (desktop computer, laptop computer, digital cameras, etc.) D. follow lab/classroom rules related to responsible use of digital equipment E. effectively use operating systems and user interfaces (file management, settings, control panel, etc.)			
2. Use appropriate terminology when communicating about current technology.	A. use appropriate terminology when communicating about current technology	digital tools, Global Positioning System (GPS), Geographic Information System (GIS), digital, database terms: category, field, records, online, email, chat, IM (instant messaging), texting, VoIP), acceptable use, wiki, blog		
3. Transfer current knowledge to learning of new technology skills.	A. apply existing skills to assess the possible uses of a new digital tool (e.g., software, hardware)			

Montana Instructional Alignment-Technology
Grade Level: 5

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
      knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use multiple approaches to explore alternative solutions.	A. identify a problem B. investigate using multiple approaches with digital tools (e.g., Geographic Information System (GIS), digital camera, computer application) C. explore alternative solutions with assistance			
2. Collect relevant data and information on a subject from a variety of digital resources.	A. define the term "database" and provide examples from everyday life (e.g., library catalogues, school records, telephone directories) B. gather data from relevant digital sources C. cite sources appropriately D. collect and organize data using digital tools (e.g., probeware, handhelds, Global Positioning System [GPS])	database terms: category, field, records		
3. Analyze and ethically use data and information from digital resources.	A. classify data B. organize data as needed C. identify ethical practices related to privacy, plagiarism, viruses, and file sharing. D. Identify copyright law to protect the ownership of intellectual property, and explain possible consequences of violating the law. E. identify fair use guidelines for using copyrighted materials (e.g., images, music, video, text) in school projects.			

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Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. (continued) A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
4. Compare accuracy, diversity, relevance and point of view, including Montana American Indians, of digital information.	A. use multiple sources to recognize the accuracy of information (e.g., authenticity, validity). B. use multiple sources to recognize the diversity of information (e.g., Wikipedia vs. the official tribal Web site). C. use multiple sources to recognize the relevance of information. D. recognize point of view of multiple sources.			
5. Share data and information ethically and appropriately cite sources.	A. ethically share data and information from digital resources B. cite sources with appropriate formatting, with guidance.			

Montana Instructional Alignment-Technology
Grade Level: 5

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Select and use online collaboration and communication tools.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)			
2. Use digital collaboration and communication tools in a safe, legal, and responsible manner.	A. discuss and follow district and school acceptable use policy B. discuss and follow Internet safety practices and responsible cyber citizenship: personal safety, identity protection, bullying prevention, and password protection	Acceptable Use Policy (AUP)		
3. Communicate the results of research and learning with others using digital tools.	A. observe and discuss digital presentations			
4. Use technology in a global learning environment.	A. establish a connection with others using a digital tool B. collaborate with students in other learning environments that are studying common topics C. participate in a global learning project with guidance	Global Learning Environment		

Montana Instructional Alignment-Technology
Grade Level: 5

Content Standards
Content Standard 1. A student must use digital tools and resources for problem solving and decision making. Content Standard 2. A student must collaborate and communicate globally in a digital environment. Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct   knowledge and develop products and processes. Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply a variety of digital tools for personal and group expression.	A. create an original work using a digital tool for personal and/or group expression			
2. Use a variety of digital tools to create a product.	A. gather knowledge on a topic from a variety of appropriate digital resources including data and graphics B. design a simple product that demonstrates the knowledge learned from the research			
3. Use technology to recognize trends and possible outcomes.	A. access various digital resources to gather data B. summarize data with guidance C. communicate ideas and concepts using various digital resources			
4. Examine the relationship of copyright to ownership of digital media.	A. discuss the purpose of the Fair Use Guidelines of the U.S. Copyright Law as it pertains to images, music, video, and text in school projects.	copyright, Fair Use Guidelines		
5. Use digital tools and skills to construct new personal understandings.	A. evaluate how technology affects life (e.g., compare and contrast life with and without a digital tool) B. develop a new personal understanding using digital tools			

Montana Instructional Alignment-Technology				
Grade Level: 5				

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply and refine the skills needed to use communication, information and processing technologies.	A. click on icons, buttons and menus to produce a desired outcome B. demonstrate developmentally appropriate keyboarding skills C. locate and correctly use parts of various digital devices (desktop computer, laptop computer, digital cameras, etc.) D. follow lab/classroom rules related to responsible use of digital tools (software, hardware) E. effectively use operating systems and user interfaces (file management, settings, control panel, etc.)			
2. Use appropriate terminology when communicating about current technology.	A. use appropriate terminology when communicating about current technology.	digital tools, Global Positioning System (GPS), Geographic Information System (GIS), digital, database terms: category, field, records, online, e-mail, chat, IM (instant messaging), texting, VoIP), acceptable use, wiki, blog		
3 Transfer current knowledge to learning of new technology skills.	A. use existing knowledge to explore and implement new technologies as appropriate.			

Montana Instructional Alignment-Technology
Grade Level: 6

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge
and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use multiple approaches to explore alternative solutions.	A. identify a problem B. investigate using multiple approaches with digital tools (e.g., Geographic Information System (GIS), digital camera, computer application) C. explore alternative solutions with assistance			
2. Collect relevant data and information on a subject from a variety of digital resources.	A. use digital tools to collect data (e.g., probeware, handhelds, Global Positioning System [GPS]) B. use online source(s) to access information, with appropriate citation C. compare the content of existing databases (e.g., online library catalog, electronic encyclopedia, InfoTrac)	online		
3. Analyze and ethically use data and information from digital resources.	A. classify data B. organize and graph data, as needed C. discuss ethical practices related to privacy, plagiarism, spam, viruses, hacking, and file sharing D. discuss copyright law to protect the ownership of intellectual property, and explain possible consequences of violating the law E. discuss fair use guidelines for using copyrighted materials (e.g., images, music, video, text) in school projects			

Montana Instructional Alignment-Technology
Grade Level: 6

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge
    and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Content Standard 1 (Continued) A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
4. Compare accuracy, diversity, relevance and point of view, including Montana American Indians, of digital information.	A. use multiple sources to show the accuracy of information (e.g., authenticity, validity) B. use multiple sources to show the diversity of information (e.g., Wikipedia vs. the official tribal Web site) C. use multiple sources to show the relevance of information E. show point of view of multiple sources			
5. Share data and information ethically and appropriately cite sources.	A. ethically share data and information from digital resources B. cite sources with appropriate formatting, with guidance.			

Montana Instructional Alignment-Technology
Grade Level: 6

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge
         and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Select and use online collaboration and communication.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)			
2. Use digital collaboration and communication tools in a safe, legal, and responsible manner.	A. discuss and follow district and school acceptable use policy B. discuss and follow Internet safety practices and responsible cyber citizenship: personal safety, identity protection, bullying prevention, and password protection			
3. Communicate the results of research and learning with others using digital tools.	A. observe and discuss digital presentations			
4. Use technology in a global learning environment.	A. establish a connection with others using a digital tool B. collaborate with students in other learning environments that are studying common topics C. participate in a global learning project with guidance	global learning environment		

Montana Instructional Alignment-Technology
Grade Level: 6

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself,construct knowledge and develop products and processes.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply a variety of digital tools for personal and group expression.	A. create an original work using a digital tool for personal and/or group expression			
2. Use a variety of digital tools to create a product.	A. gather knowledge on a topic from a variety of appropriate digital resources including data and graphics B. design a simple product that demonstrates the knowledge learned from the research (e.g., quiz in a spreadsheet, graphs or charts, timeline) C. develop a product explaining the information or concepts learned D. present the product to an audience using a variety of digital tools			
3. Use technology to recognize trends and possible outcomes.	A. access various digital resources to gather data B. summarize data with guidance C. communicate ideas and concepts using various digital resources			
4. Examine the relationship of copyright to ownership of digital media.	A. define and clarify the limitations of each media resource of the Fair Use Guidelines of the U.S. Copyright Law as it pertains to student projects B. discuss student options and choices regarding copyright of digital media			
5. Use digital tools and skills to construct new personal understandings.	A. evaluate how technology affects life (e.g., compare and contrast life with and without a digital tool) B. develop a new personal understanding individually and collaboratively using digital tools			

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge
**   and develop products and processes.**
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply and refine the skills needed to use communication, information and processing technologies.	A. click on icons, buttons and menus to produce a desired outcome B. demonstrate developmentally appropriate keyboarding skills C. locate and correctly use parts of various digital devices (desktop computer, laptop computer, digital cameras, etc.) D. follow lab/classroom rules related to responsible use of digital tools (software, hardware) E. effectively use operating systems and user interfaces (file management, settings, control panel, etc.)			
2. Use appropriate terminology when communicating about current technology.	A. use appropriate terminology when communicating about current technology.	digital tools, Global Positioning System (GPS), Geographic Information System (GIS), digital, database terms: category, field, records, online, e-mail, chat, IM (instant messaging), texting, VoIP), acceptable use, wiki, blog		
3. Transfer current knowledge to learning of new technology skills.	A. use existing knowledge to explore and implement new technologies as appropriate. (e.g. understanding that all menu-driven devices operate in a similar fashion)			

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
**   knowledge and develop products and processes.**
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use multiple approaches to explore alternative solutions.	A. identify a problem B. investigate using multiple approaches with digital tools (e.g., Geographic Information System (GIS), digital camera, computer application) C. explore alternative solutions proficiently			
2. Collect relevant data and information on a subject from a variety of digital resources.	A. select and use digital tools to collect data (e.g., probeware, handhelds, Global Positioning System) B. use online sources to access information, with appropriate citation C. perform searches in a database (e.g., browse, sort, filter, search on selected criteria, delete data, enter data).			
3. Analyze and ethically use data and information from digital resources.	A. examine data and information from digital resources B. organize and manipulate data with digital tools, as needed (e.g., charts, comparisons, tables) C. describe ethical practices related to data, privacy, plagiarism, spam, viruses, hacking, and file sharing D. describe copyright law to protect the ownership of intellectual property, and explain possible consequences of violating the law E. describe fair use guidelines for using copyrighted materials (e.g., images, music, video, text) in school projects			

Montana Instructional Alignment-Technology		
Grade Level: 7		

Content Standards
Content Standard 1. A student must use digital tools and resources for problem solving and decision making. **Content Standard 2.** A student must collaborate and communicate globally in a digital environment. **Content Standard 3.** A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes. **Content Standard 4.** A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. (continued) A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
4. Compare accuracy, diversity, relevance and point of view, including Montana American Indians, of digital information.	A. use multiple sources to determine the accuracy of information (e.g., authenticity, validity) B. use multiple sources to determine the diversity of information (e.g., Wikipedia vs. the official tribal Web site) C. use multiple sources to determine the relevance of information D. determine point of view of multiple sources			
5. Share data and information ethically and appropriately cite sources.	A. share data and information in an ethical manner from digital resources B. cite sources with appropriate formatting, with guidance			

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
        knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Select and use online collaboration and communication.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)			
2. Use digital collaboration and communication tools in a safe, legal, and responsible manner.	A. discuss and follow district and school acceptable use policy B. discuss and follow Internet safety practices and responsible cyber citizenship: personal safety, identity protection, bullying prevention, and password protection			
3. Communicate the results of research and learning with others using digital tools.	A. observe and discuss digital presentations			
4. Use technology in a global learning environment.	A. establish a connection with others using a digital tool B. collaborate with students in other learning environments that are studying common topics C. participate in a global learning project with guidance	global learning environment		

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply a variety of digital tools for personal and group expression.	A. create an original work using multiple digital tools for personal and/or group expression			
2. Use a variety of digital tools to create a product.	A. gather knowledge or information on a topic from a variety of digital resources including data, graphics, or events B. design an original product that demonstrates the knowledge learned from the research C. develop a product explaining the information or concepts learned (e.g., pamphlet on safety guidelines, Web quest, movie, slideshow) D. present the product to a targeted audience using a variety of digital tools			
3. Use technology to recognize trends and possible outcomes.	A. access various digital resources to gather data B. compare and contrast data to identify patterns and trends using various digital resources C. communicate ideas and concepts using various digital resources			

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Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
        knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself
        construct knowledge and develop products and processes.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
4. Examine the relationship copyright to ownership of digital media.	A. define and clarify the limitations of various media resources of the Fair Use Guidelines of the U.S. Copyright Law as it pertains to student projects. B. compare and contrast student options and choices regarding copyright of digital media			
5. Use digital tools and skills to construct new personal understandings.	A. evaluate how technology affects life (e.g., compare and contrast life with and without a digital tool) B. develop a new personal understanding individually and collaboratively using digital tools			

Montana Instructional Alignment-Technology
Grade Level: 7

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply and refine the skills needed to use communication, information and processing technologies.	A. click on icons, buttons and menus to produce a desired outcome B. demonstrate developmentally appropriate keyboarding skills C. locate and correctly use parts of various digital devices (desktop computer, laptop computer, digital cameras, Geographic Information System (GIS), probeware, etc.) D. effectively use operating systems and user interfaces (file management, settings, control panel, etc.)			
2. Use appropriate terminology when communication about current technology.	A. use appropriate terminology when communicating about current technology.	digital tools, Global Positioning System (GPS), Geographic Information System (GIS), digital, database terms: category, field, records, online, e-mail, chat, IM (instant messaging), texting, VoIP), acceptable use, wiki, blog		
3. Transfer current knowledge to learning of new technology skills.	A. use existing knowledge to explore and implement new technologies as appropriate from situation to situation.			

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Montana Instructional Alignment-Technology
Grade Level: 8

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express is/herself, construct knowledge and
  develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use multiple approaches to explore alternative solutions.	A. identify a problem B. investigate using multiple approaches with digital tools (e.g. Geographic Information System (GIS), digital camera, computer application) C. explore alternative solutions independently.	Geographic Information System		
2. Collect relevant data and information on a subject from a variety of digital resources.	A. select and use appropriate digital tools to collect data (e.g., probeware, handhelds, Global Positioning System (GPS) B. utilize online tools to access information, with appropriate citation C. perform searches and select content in existing databases (e.g., online library catalog, digital encyclopedia, library databases) D. evaluate relevant data and information from multiple digital resources			
3. Analyze and ethically use data and information from digital resources.	A. manipulate, organize and graph data, as needed B. employ ethical practices related to data, privacy, plagiarism, spam, viruses, hacking, and file sharing C. employ copyright law to protect the ownership of intellectual property, and explain possible consequences of violating the law. D. apply fair use guidelines			
4. Compare accuracy, diversity, relevance and point of view, including Montana American Indians, of digital information.	A. use multiple sources to compare the accuracy of information (e.g., authenticity, validity). B. use multiple sources to compare the			
5. Share data and information ethically and appropriately cite sources.	A. share data and information in an ethical manner from digital resources B. cite sources with appropriate formatting			

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express is/herself, construct knowledge and
           develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Select and use online collaboration and communication.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)			
2. Use digital collaboration and communication tools in a safe, legal, and responsible manner.	A. discuss and follow district and school acceptable use policy B. operate within the guidelines of the law to collaborate and communicate ethically, safely, and responsibly C. discuss and follow Internet safety practices and responsible cyber citizenship: personal safety, identity protection, bullying prevention, and password protection	Acceptable Use Policy		
3. Communicate the results of research and learning with others using digital tools.	A. observe and discuss digital presentations			
4. Use technology in a global learning environment.	A. establish a connection with others using a digital tool B. collaborate with students in other learning environments that are studying common topics C. participate in a global learning project	global learning environment		

Montana Instructional Alignment-Technology
Grade Level: 8

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself construct knowledge and develop products and processes.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply a variety of digital tools for personal and group expression.	A. create an original work using multiple digital tools for personal and/or group expression			
2. Use a variety of digital tools to create a product.	A. gather knowledge or information on a topic from a variety of digital resources including data, graphics, or events B. design an original multimedia product that demonstrates the knowledge learned from the research C. produce an original digital product explaining the information or concepts learned (e.g., pamphlet on safety guidelines, Web quest, or a movie or slideshow presentation) D. present the finished product using a variety of digital tools to a targeted audience			
3. Use technology to recognize trends and possible outcomes.	A. access various digital resources to gather data B. evaluate data C. interpret and predict trends and outcomes from data using various digital resources			
4. Examine the relationship copyright to ownership of digital media.	A. define and clarify the limitations of various media resources of the Fair Use Guidelines of the U.S. Copyright Law as it pertains to student projects. B. compare and contrast student options and choices regarding copyright of digital media			
5. Use digital tools and skills to construct new personal understandings.	A. evaluate how technology affects life (e.g., compare and contrast local community life with and without digital tools) B. develop a new personal understanding individually and collaboratively using digital tools			

Montana Instructional Alignment-Technology
Grade Level: 8

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark End of Grade 8	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply and refine the skills needed to use communication, information and processing technologies.	A. click on icons, buttons and menus to produce a desired outcome B. demonstrate developmentally appropriate keyboarding skills C. locate and correctly use parts of various digital devices (desktop computer, laptop computer, digital cameras, Global Positioning System (GPS), probeware, etc.) D. effectively use operating systems and user interfaces (file management, settings, control panel, etc.)			
2. Use appropriate terminology when communication about current technology.	A. use appropriate terminology when communicating about current technology.	digital tools, Global Positioning System (GPS), Geographic Information System (GIS), digital, database terms: category, field, records, online, e-mail, chat, IM (instant messaging), texting, VoIP), acceptable use, wiki, blog		
3. Transfer current knowledge to learning of new technology skills.	A. use existing knowledge to explore and implement new technologies as appropriate.			

Montana Instructional Alignment-Technology
Grade Level: 9

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
      knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use multiple approaches and diverse perspectives, including Montana American Indians, to explore alternative solutions.	A. discuss a problem from multiple perspectives B. investigate using multiple approaches with digital tools (e.g. Geographic Information System (GIS), digital camera, computer application) C. propose alternative solutions			
2. Collect relevant data and information on a subject from a variety of digital resources.	A. discuss options for and justify choice of digital resources B. use a variety of digital resources C. collect data and/or information on a specific subject			
3. Select from an array of digital tools to organize and analyze data from a variety of resources.	A. discuss options for organizing and analyzing using digital tools B. use a variety of digital tools to organize and analyze data			
4. Evaluate and synthesize data and information.	A. discuss data/information, checking for relevance and logic B. analyze data using digital tools C. discuss results of analysis for relevance and logic D. discuss possible solutions and make a recommendation based on the data			
5. Share data and information ethically and appropriately cite sources.	A. examine ethics of data sharing and citations B. cite sources appropriately C. apply copyright and intellectual property options (e.g., traditional copyright, creative commons, public domain, etc.) to original works with guidance	copyright, intellectual property, public domain, creative commons		

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Montana Instructional Alignment-Technology
Grade Level: 9

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Evaluate and apply online collaboration and communication tools to exchange ideas and information and participate in projects.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)	blog		
2. Use digital collaboration and communication tools in a safe, legal, and responsible manner and advocate for such use by others.	A. discuss and follow district and school acceptable use policy B. discuss and follow Internet safety practices and responsible cyber citizenship: personal safety, identity protection, bullying prevention, and password protection C. discuss responsible use of digital media and explain possible consequences of misuse D. collaborate and communicate legally, ethically, safely, and responsibly			
3. Synthesize and communicate the results of research and learning with others using various digital tools.	A. observe and discuss digital presentations			
4. Apply technology that supports collaboration, learning, and productivity in a global environment.	A. use digital tools to collaborate with others outside the classroom B. participate in a global learning project			

Montana Instructional Alignment-Technology
Grade Level: 9

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself construct knowledge and develop products and processes.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Develop projects combining multiple digital tools to suit a variety of audiences and purposes.	A. define task B. consider approaches to task C. select approach that will suit audience and purpose D. develop timeline for project E. gather materials and resources F. discuss available digital tools G. select at least two digital tools for use in the project H. create project			
2. Evaluate and employ a variety of digital tools to effectively produce an original work.	A. define task B. consider approaches to task C. select approach that will suit intended result D. develop timeline E. gather materials and resources F. discuss available digital tools G. select at least two digital tools for use in creating the original work H. create original work by combining at least two mediums			
3. Use models and simulations to identify trends, predict outcomes, and investigate information.	A. define terms: model, simulation, trend, outcome B. list benefits and limitations of models and simulations C. discuss benefits and limitations of models and simulations D. explain the usefulness of a model/simulation for analyzing a given task E. use model/simulation to investigate a given task	model, simulation, trend, outcome		
4. Evaluate legal protections for intellectual property and apply that understanding to personally created digital media.	A. define and clarify the limitations of various media resources of the Fair Use Guidelines of the U.S. Copyright Law as it pertains to student projects. B. compare and contrast student options and choices regarding copyright of digital media			
5. Use digital tools and skills to construct new personal understandings.	A. evaluate how technology affects life (e.g., compare and contrast life in societies with and without digital tools) B. assume shared responsibility for collaborative work while using digital tools C. develop a new personal understanding individually and collaboratively using digital tools			

Montana Instructional Alignment-Technology
Grade Level: 9

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply and refine the skills needed to use communication, information, and processing technologies.	A. click on icons, buttons and menus to produce a desired outcome B. locate and correctly use parts of various digital devices (desktop computer, laptop computer, digital cameras, Global Positioning System (GPS), probeware, graphing calculator, etc.) C. effectively use operating systems and user interfaces (file management, settings, control panel, etc.)			
2. Use appropriate terminology when communicating about current technology.	A. use appropriate terminology when communicating about current technology	digital tools, Global Positioning System (GPS), Geographic Information System (GIS), digital, database terms: category, field, records, online, e-mail, chat, IM (instant messaging), texting, VoIP), acceptable use, wiki, blog		
3. Transfer current knowledge to learning about new technology skills.	A. use existing knowledge to explore and implement new technologies as appropriate.			

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Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use multiple approaches and diverse perspectives, including Montana American Indians, to explore alternative solutions.	A. discuss a problem from multiple perspectives B. investigate using multiple approaches with digital tools (e.g., Geographic Information System (GIS), digital camera, computer application) C. explore alternative solutions			
2. Collect relevant data and information on a subject from a variety of digital resources.	A. discuss options for and justify choice of digital resources B. use a variety of digital resources C. collect data and/or information on a specific subject			
3. Select from an array of digital tools to organize and analyze data from a variety of resources.	A. select and use a variety of appropriate digital tools B. examine options for organizing and analyzing using digital tools			
4. Evaluate and synthesize data and information.	A. examine data/information for relevance and logic B. analyze data using digital tools C. examine results of analysis for relevance and logic D. explore multiple perspectives for solving a problem and make a recommendation			
5. Share data and information ethically and appropriately cite sources.	A. present solutions in an ethical manner, with guidance B. cite sources appropriately C. apply copyright and intellectual property options (e.g., traditional copyright, creative commons, public domain, etc.) to original works with guidance			

Montana Instructional Alignment-Technology
Grade Level: 10

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
  knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Evaluate and apply online collaboration and communication tools to exchange ideas and information and participate in projects.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)			
2. Use digital collaboration and communication tools in a safe, legal, and responsible manner and advocate for such use by others.	A. discuss and follow district and school acceptable use policy B. discuss and follow Internet safety practices and responsible cyber citizenship: personal safety, identity protection, bullying prevention, and password protection C. discuss responsible use of digital media and consequences of misuse D. collaborate and communicate legally, ethically, safely, and responsibly	copyright, intellectual property, public domain		
3. Synthesize and communicate the results of research and learning with others using various digital tools.	A. observe and discuss digital presentations			
4. Apply technology that supports collaboration, learning, and productivity in a global environment.	A. compare collaborative digital tools B. select appropriate tool for collaborating with others C. participate in a global learning collaboration by communicating with others outside the classroom			

Montana Instructional Alignment-Technology
Grade Level: 10

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Develop projects combining multiple digital tools to suit a variety of audiences and purposes.	A. define task B. consider approaches to task C. select approach that will suit audience and purpose D. develop timeline for project E. gather materials and resources F. consider available digital tools G. select at least two digital tools for use in the project H. create project by presenting ideas through at least two mediums to suit audience and purpose			
2. Evaluate and employ a variety of digital tools to effectively produce an original work.	A. define task B. consider approaches to task C. select approach that will suit intended result D. develop timeline for project E. gather materials and resources F. consider available digital tools G. select at least two digital tools for use in the original work H. create original work by combining at least two mediums			
3. Use models and simulations to identify trends, predict outcomes, and investigate information.	A. evaluate benefits and limitations of models and simulations B. evaluate the usefulness of a model/simulation for analyzing a given task C. use model/simulation to investigate a given task D. discuss the results of the investigation			
4. Evaluate legal protections for intellectual property and apply that understanding to personally created digital media.	A. explore the various legal protections for digital works B. chose an appropriate legal protection C. apply chosen legal protection to students' original works with guidance D. follow copyright and intellectual property regulations E. cite sources appropriately			
5. Use digital tools and skills to construct new personal understandings.	A. define and clarify the limitations of various media resources of the Fair Use Guidelines of the U.S. Copyright Law as it pertains to student projects. B. compare and contrast student options and choices regarding copyright of digital media			

Montana Instructional Alignment-Technology
Grade Level: 10

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
        knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply and refine the skills needed to use communication, information, and processing technologies.	A. click on icons, buttons and menus to produce a desired outcome B. locate and correctly use parts of various digital devices (desktop computer, laptop computer, digital cameras, Global Positioning System (GPS), probeware, graphing calculator, etc.) C. effectively use operating systems and user interfaces (file management, settings, control panel, etc.)			
2. Use appropriate terminology when communicating about current technology.	A. use appropriate terminology when communicating about current technology	digital tools, Global Positioning System (GPS), Geographic Information System (GIS), digital, database terms: category, field, records, online, e-mail, chat, IM (instant messaging), texting, VoIP), acceptable use, wiki, blog		
3. Transfer current knowledge to learning about new technology skills.	A. use existing knowledge to explore and implement new technologies as appropriate.			

Montana Instructional Alignment-Technology
Grade Level: 11

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use multiple approaches and diverse perspectives, including Montana American Indians, to explore alternative solutions.	A. discuss a problem from multiple perspectives B. investigate using multiple approaches with digital tools (e.g. Geographic Information System (GIS), digital camera, computer application) C. compare and contrast alternative solutions			
2. Collect relevant data and information on a subject from a variety of digital resources.	A. compare and contrast options for digital resources B. use a variety of digital resources C. collect data and/or information on a specific subject			
3. Select from an array of digital tools to organize and analyze data from a variety of resources.	A. select and use a variety of appropriate digital tools B. compare/contrast options for organizing and analyzing using digital tools			
4. Evaluate and synthesize data and information.	A. compare/contrast data/ information for relevance and logic B. analyze data using digital tools C. compare/contrast results of analysis for relevance and logic D. compare/contrast a variety of possible solutions and make a recommendation			
5. Share data and information ethically and appropriately cite sources.	A. present solutions in an ethical manner, with guidance B. cite sources appropriately C. apply copyright and intellectual property options (e.g., traditional copyright, creative commons, public domain, etc.) to original works with guidance			

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Evaluate and apply online collaboration and communication tools to exchange ideas and information and participate in projects.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)			
2. Use digital collaboration and communication tools in a safe, legal, and responsible manner and advocate for such use by others.	A. discuss and follow district and school acceptable use policy B. discuss and follow Internet safety practices and responsible cyber citizenship: personal safety, identity protection, bullying prevention, and password protection C. discuss responsible use of digital media and consequences of misuse D. collaborate and communicate legally, ethically, safely, and responsibly	copyright, intellectual property, public domain		
3. Synthesize and communicate the results of research and learning with others using various digital tools.	A. observe and discuss digital presentations			
4. Apply technology that supports collaboration, learning, and productivity in a global environment.	A. evaluate collaborative digital tools B. select tool for collaborating with others to suit audience and purpose C. participate in a global learning collaboration by communicating with others outside the classroom			

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
   knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Develop projects combining multiple digital tools to suit a variety of audiences and purposes.	A. define task B. evaluate multiple approaches and select an appropriate approach to suit audience and purpose C. develop timeline for project D. gather materials and resources E. engage prior knowledge of tools available F. consider various combinations of media G. select the most appropriate combination for the task H. create project by presenting ideas through at least two mediums to suit audience and purpose			
2. Evaluate and employ a variety of digital tools to effectively produce an original work.	A. define task B. evaluate multiple approaches and select an appropriate approach to suit intended result C. develop timeline for project D. gather materials and resources E. engage prior knowledge of tools available F. consider various combinations of media G. select the most appropriate combination for the original work H. create original work by combining multiple digital tools to best suit intended result			
3. Use models and simulations to identify trends, predict outcomes, and investigate information.	A. determine whether or not using a model/simulation would be beneficial in evaluating a situation B. justify the use of a model/simulation for evaluating a situation C. evaluate available models/simulations and select the best tool for analyzing a situation D. use a model/simulation to identify trends, predict outcomes, and investigate information E. evaluate results of model/simulation in terms of benefits and limitations of the model/simulation			

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
**   knowledge and develop products and processes.**
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. (continued) A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
4. Evaluate legal protections for intellectual property and apply that understanding to personally created digital media.	A. compare/contrast the various legal protections for digital works B. explain the use of chosen legal protection C. apply chosen legal protection to students' original works D. follow copyright and intellectual property regulations E. cite sources appropriately			
5. Use digital tools and skills to construct new personal understandings.	A. evaluate how technology affects life (e.g., compare and contrast life in societies with and without digital tools) B. demonstrate ability to work effectively with diverse teams (e.g., teams beyond the state and nation) C. assume shared responsibility for collaborative work while using digital tools D. develop a new personal understanding individually and collaboratively using digital tools			

Content Standards

Content Standard 1. A student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct
knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply and refine the skills needed to use communication, information, and processing technologies.	A. click on icons, buttons and menus to produce a desired outcome B. locate and correctly use parts of various digital devices (desktop computer, laptop computer, digital cameras, Global Positioning System (GPS), probeware, graphing calculator, etc.) C. effectively use operating systems and user interfaces (file management, settings, control panel, etc.)			
2. Use appropriate terminology when communicating about current technology.	A. use appropriate terminology when communicating about current technology	digital tools, Global Positioning System (GPS), Geographic Information System (GIS), digital, database terms: category, field, records, online, e-mail, chat, IM (instant messaging), texting, VoIP), acceptable use, wiki, blog		
3. Transfer current knowledge to learning about new technology skills.	A. use existing knowledge to explore and implement new technologies as appropriate.			

Montana Instructional Alignment-Technology
Grade Level: 12

Content Standards

Content Standard 1. A, a student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 1. A student must use digital tools and resources for problem solving and decision making.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Use multiple approaches and diverse perspectives, including Montana American Indians, to explore alternative solutions.	A. discuss a problem from multiple perspectives B. investigate using multiple approaches with digital tools (e.g., Geographic Information System (GIS), digital camera, computer application) C. critique alternative solutions D. justify selected solutions			
2. Collect relevant data and information on a subject from a variety of digital resources.	A. critique options for digital resources B. use a variety of digital resources C. collect data and/or information on a specific subject			
3. Select from an array of digital tools to organize and analyze data from a variety of resources.	A. critique digital tools for organizing data B. select and use the appropriate digital tool(s) C. justify choice of tool(s)			
4. Evaluate and synthesize data and information.	A. critique data/information for relevance and logic B. analyze data using digital tools C. critique results of analysis for relevance and logic D. critique possible solutions and justify chosen solution			
5. Share information ethically and note sources.	A. present solutions in an ethical manner B. cite sources appropriately C. apply copyright and intellectual property options (e.g., traditional copyright, creative commons, public domain, etc.) to original works with guidance			

Montana Instructional Alignment-Technology
Grade Level: 12

Content Standards
Content Standard 1. A, a student must use digital tools and resources for problem solving and decision making. **Content Standard 2. A student must collaborate and communicate globally in a digital environment.** **Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.** **Content Standard 4. A student must possess a functional understanding of technology concepts and operations.**

Technology Content Standard 2. A student must collaborate and communicate globally in a digital environment.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Evaluate and apply online collaboration and communication tools to exchange ideas and information and participate in projects.	A. experience online communication tools with teacher assistance (e.g., e-mail, VoIP, chat/IM) B. participate in a whole class online collaboration project (e.g., class-to-class, Flat Stanley, author communication, pen pals)			
2. Use digital collaboration and communication tools in a safe, legal, and responsible manner and advocate for such use by others.	A. discuss and follow district and school acceptable use policy B. discuss and follow Internet safety practices and responsible cyber citizenship: personal safety, identity protection, bullying prevention, and password protection C. discuss responsible use of digital media and consequences of misuse D.collaborate and communicate legally, ethically, safely, and responsibly	copyright, intellectual property, public domain		
3. Synthesize and communicate the results of research and learning with others using various digital tools.	A. observe and discuss digital presentations			
4. Apply technology that supports collaboration, learning, and productivity in a global environment.	A. evaluate collaborative digital tools B. select tool for collaborating with others to suit audience and purpose C. plan and implement a global collaborative project using digital tools			

Montana Instructional Alignment-Technology
Grade Level: 12

Content Standards
Content Standard 1. A, a student must use digital tools and resources for problem solving and decision making. **Content Standard 2. A student must collaborate and communicate globally in a digital environment.** **Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and**   **processes.** **Content Standard 4. A student must possess a functional understanding of technology concepts and operations.**

Technology Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Develop projects combining multiple digital tools to suit a variety of audiences and purposes.	A. define task B. critique multiple approaches and justify best approach to suit audience and purpose C. develop timeline for project D. gather materials and resources E. engage prior knowledge of tools available F. critique various combinations of media G. justify the most appropriate combination for the task H. tailor project by combining multiple digital tools to best suit audience and purpose			
2. Evaluate and employ a variety of digital tools to effectively produce an original work.	A. define task B. critique multiple approaches and justify best approach to suit intended result C. develop timeline for project D. gather materials and resources E. engage prior knowledge of tools available F. critique various combinations of media G. justify the most appropriate combination for the task H. create original work by combining multiple digital tools to best achieve intended result			

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Montana Instructional Alignment-Technology
Grade Level: 12

Content Standards

Content Standard 1. A, a student must use digital tools and resources for problem solving and decision making.
Content Standard 2. A student must collaborate and communicate globally in a digital environment.
Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 3. (continued) A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
3. Use models and simulations to identify trends, predict outcomes, and investigate information.	A. determine whether or not using a model/simulation would be beneficial in evaluating a situation B. justify the use of a model/simulation for evaluating a situation C. critique available models/simulations and select the best tools for analyzing a situation D. use multiple models/simulations to identify trends, predict outcomes, and investigate information E. critique results of models/simulations in terms of benefits and limitations of the model/simulation F. justify the usefulness of a particular model/simulation based on the results of the analysis			
4. Evaluate legal protections for intellectual property and apply that understanding to personally created digital media.	A. critique the various legal protections for digital works B. justify the use of chosen legal protection C. apply chosen legal protection to students' original works D. follow copyright and intellectual property regulations E. cite sources appropriately			
5. Use digital tools and skills to construct new personal understandings.	A. evaluate how technology affects life (e.g., compare and contrast life in societies with and without digital tools) B. demonstrate ability to work effectively with diverse teams (e.g., teams beyond the state, nation and global) C. assume shared responsibility for collaborative work while using digital tools D. develop a new personal understanding individually and collaboratively using digital tools			

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Content Standards

Content Standard 1. A, a student must use digital tools and resources for problem solving and decision making.
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Content Standard 3. A student must apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge and develop products and processes.
Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Technology Content Standard 4. A student must possess a functional understanding of technology concepts and operations.

Benchmark Upon Graduation	Essential Learning Expectation	Essential Vocabulary	Assessment To Be Developed	Materials and Resources To Be Developed
1. Apply and refine the skills needed to use communication, information, and processing technologies.	A. click on icons, buttons and menus to produce a desired outcome independently B. locate and correctly use parts of various digital devices independently (desktop computer, laptop computer, digital cameras, Global Positioning System (GPS), probeware, graphing calculator, etc.) C. effectively use operating systems and user interfaces independently (file management, settings, control panel, etc.)			
2. Use appropriate terminology when communicating about current technology.	A. use appropriate terminology when communicating about current technology	digital tools, Global Positioning System (GPS), Geographic Information System (GIS), digital, database terms: category, field, records, online, e-mail, chat, IM (instant messaging), texting, VoIP), acceptable use, wiki, blog		
3. Transfer current knowledge to learning about new technology skills.	A. use existing knowledge to explore and implement new technologies as appropriate.			

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Tech Standards Glossary Terms

Asynchronous Communication - Asynchronous means not occurring at the same time. Asynchronous refers to content, instruction, and communication between participants (e.g., students and teachers) that occurs at different times, the period of which may vary by circumstance, (e.g., e-mail, forums, blogs). Adapted from ARM chapter 55 definitions

Collaboration Tools - Any digital tool that allows for shared input both synchronous and asynchronous (e.g., social networks, wikis, blogs, social bookmarking, forums, video conferencing, online productivity tools).

Communication Tools - Any digital tool that allows for exchange of information and ideas both synchronous and asynchronous (e.g., email, instant messaging, forums)

Copyright - The idea that the authors of ideas, designs, and products may register their intellectual property with the government, thereby limiting the extent to which others may use and profit from, modify, or perform the protected creation. In the United States, the doctrine of Fair Use allows others to review, comment on, parody, and study copy-written materials with proper citation.

Digital Citizenship - The norms of behavior with regard to technology use. It includes online etiquette, responsible use of technology systems, information and software, safety and security.

Digital Collaboration - Using digital tools for the purpose of collaboration

Digital Environment - A virtual space that is created using digital tools for collaboration and communication.

Digital Information - written language, audio, or video accessed through digital means.

Digital Media - Any type of information in digital format, including computer-generated text, graphics, audio and animations.

Digital Presentation Tools - Tools that facilitate the sharing if information with others, either locally or in a virtual environment.

Digital Sources - information gathered (written, audio, video) online and noted.

Digital Tools - Inclusive of all hardware and/or software. (e.g., Computers, PDA's, Personal Video Players, personal music players, Word processors, Spreadsheets, Instant messaging, web browsers, web 2.0 tools)

Ethical Use - Respecting the hardware, ownership, privacy, and use of digital tools. (e.g., respecting ownership of intellectual property, being mindful of security and passwords, giving credit to cited sources, exhibiting appropriate behavior online, acknowledging boundaries of privacy)

Flexible Networks - A network environment, which adapts with changing and emerging technologies and allows the users to explore interests safely and expediently.

Functional understanding - understanding usage sufficiently to perform day-to-day classroom tasks using digital tools

Global Communication - Refers to student communication outside the traditional classroom to learn collaboratively with other students from around the world.

Global Learning Environment - digital environment that extends the learning beyond the classroom walls

Global Positioning System – a navigation devise that receives signals from satellites in order to determine the current location according to latitude and longitude readings.

Information and communication technology - "This term is used throughout much of the WORLD (added emphasis) in place of the word *technology*."

Information and Processing Technologies
Ackoff via Belinger, Castro, Mills at http://www.systems-thinking.org/dikw/dikw.htm
- Data - data is raw. It simply exists and has no significance beyond its existence (in and of itself). It can exist in any form, usable or not. It does not have meaning of itself.
- Information - data with labels.
- Knowledge - knowledge is the appropriate collection of information, such that it's intent is to be useful. Knowledge is a deterministic process.
- Understanding - understanding is an interpolative and probabilistic process. It is cognitive and analytical. It is the process by which I can take knowledge and synthesize new knowledge from the previously held knowledge.
- Wisdom - wisdom is an extrapolative and non-deterministic, non-probabilistic process. It beckons to give us understanding about which there has previously been no understanding, and in doing so, goes far beyond understanding itself.

Integrated Learning Systems - A computer-based system designed to deliver content, often used for remedial instruction.

Intellectual Property - refers to a range of creations such as music, literature, artistic works, symbols, names, images or designs. Intellectual property law grants owners of such property exclusive rights to govern its use.

Inquiry - "Inquiry is a multifaceted activity that involves making observations; posing questions; examining books and other sources of information to see what is already known; planning investigations; reviewing what is already known in light of experimental evidence; using tools to gather, analyze, and interpret data; proposing answers, explanations, and predictions; and communicating the results. Inquiry requires identification of assumptions, use of critical and logical thinking, and consideration of alternative explanations." Adapted from: (National Science Education Standards, 2004, p.23)

Language Hierarchy
- With Assistance - Direct instruction with step by step learning
- With Guidance - Walk away…less impact….limited input
- Proficient - Student has a working knowledge of the skill, although they may not be able to teach the skill.

- Independently - Students work on their own without guidance; may be able to lead other students or combine skills with one previously learned.

Personal Responsibility - Understanding that personal actions have effects and that individuals are responsible for choices they make.

Synchronous Communication - Synchronous refers to content, instruction, and communication between participants (e.g., students and teachers) that occurs at the same time even though they may be in different physical locations. For example, instruction in which students and teachers are online at the same time to engage in the exchange of ideas. (e.g., chat rooms, VOIP, IM, and videoconferencing). Adapted from ARM chapter 55 definitions

Technology Operations - basic skills needed to operate digital hardware and software

Web 2.0 - is an emerging set of technologies occurring in the World Wide Web that aims to facilitate creativity, information sharing, and, most notably, collaboration among users