

APPLIED TECHNOLOGIES

Grade Level: 9
Length: 1 Semester
Period(s) Per Day: 1
Credit: 1/2

Credit Requirement Fulfilled: Vocational/Required

Course Description:

Applied Technologies has been designed to help you understand computer components and their functions, develop and review keyboarding skills that are essential for the effective use of computers, and to use word processing, spreadsheet, database, and presentation software that is used in the work place. The internet will also be used for research and to teach safe and effective social networking.

Theme Samples:

1. Keyboarding
2. Computer Applications using Google
3. Digital Citizenship
4. Computer Applications using Microsoft Office
5. Coding

Course Objectives and Expectations:

This course will explain the impact of computers on society, demonstrate proficiency in keyboarding techniques, speed and accuracy, demonstrate proficiency in basic operating system functions, access useful information on the Internet and discuss computer ethics, security, and privacy. Students are expected to have the technology skills necessary to succeed in their high school courses and potential career choices

Student Objectives:

Students will be able to:

1. Explain the impact of computers on society and assess the impact of information technology in a diverse global society.
2. Formulate and gain proficiencies in keyboarding techniques, speed and accuracy.
3. Formulate and gain proficiencies in basic operating system functions.
4. Formulate and access useful information on the Internet.
5. Evaluate respectful, responsible inclusive and ethical behaviors in the digital world.
6. Summarize and use various input technologies to enter and manipulate information appropriately.

7. Contrast and identify, the use, and troubleshoot applications.
8. Innovate, use, analyze in order to create digital media.
9. Analyze, develop and test programs created in coding languages.
10. Support and use intellectual property laws, copyright laws and ethical practices when creating web/digital communications.

Pacing	Montana Standards for Career and Vocational	National Standards for Business Education
<i>Unit 1. Keyboarding</i> <i>Unit 2. Computer</i> <i>Applications using Google Drive</i> <i>Unit 3. Digital Citizenship</i> <i>Unit 4. Computer</i> <i> Applications</i> <i> Microsoft Office</i> <i>Unit 5. Coding</i>	M3-II M3-II, M4-II M3-II, M4-II M3-II, M4-II, M3-II, M4-II	N-IT5, N-IT7, N-IT8 N-IT5, N-IT6 N-IT1, N-IT4, N-IT5, N-IT8, N-IT17 N-IT4, N-IT8 N-IT2, N-IT3

- A. Keyboarding
- B. Google Drive
 - i. Docs
 - ii. Drawings
 - iii. Forms
 - iv. Sheets
 - v. Sites
 - vi. Slides
- C. Digital Citizenship
 - i. Sexting and Texting
 - ii. Texting While Driving
 - iii. Cyber Bullying
 - iv. Social Media and Internet Safety
- D. 3D Animation
- E. Microsoft Office
 - i. Word
 - ii. Excel
 - iii. Access
 - iv. PowerPoint
- F. Computer Coding

Timeline:

Keyboarding.....	(2 weeks to cover)
Google Docs.....	(1 week to cover)
Google Drawings	(1 week to cover)
Google Forms.....	(1 week to cover)
Google Sheets	(1 week to cover)
Google Sites	(1 week to cover)
Google Slides	(1 weeks to cover)
Digital Citizenship	(2 weeks to cover)
3D Animation.....	(2 weeks to cover)
Microsoft Word	(1 weeks to cover)
Microsoft Excel.....	(1 weeks to cover)
Microsoft Access	(1 weeks to cover)
Microsoft PowerPoint	(1 weeks to cover)
Computer Coding.....	(3 weeks to cover)

Montana Content Standards

Career and Vocational/Technical Education Content Standard 1

M1

Students experience various career opportunities and assess personal career pathways.

Rationale - rewarding careers and productive employment are built through exploration and an understanding of career choices.

Benchmark I (by the end of 8th grade)	Benchmark II (grades 9-12)	Benchmark III (concentrators)
1. describe and demonstrate the importance of goal setting and career planning.	1. explore and identify personal interests, aptitudes, and abilities and develop strategies to achieve tentative career goals.	1. develop evaluate, and modify personal career plans.
2. explore and investigate career opportunities.	2. utilize local resources to research career plans.	2. experience an internship, job shadow, or work experience related to their career plan.
3. describe various lifetime roles (e.g., friend, student, leader, worker, family member).	3. recognize the interrelationships of family, community career, and leisure roles.	3. evaluate career choices and the effect on family and lifestyle.

Career and Vocational/Technical Education Content Standard 2

M2

Students demonstrate an understanding and apply principles of Resource Management (i.e., financial, time, personal management).

Rationale - Students must be able to manage workplace resources in order to become successful members of society.

Benchmark I (by the end of 8th grade)	Benchmark II (grades 9-12)	Benchmark III (concentrators)
1. use basic monetary skills, practice maintaining basic financial records.	1. prepare a budget and keep financial records.	1. prepare and analyze financial plans, make forecasts, make adjustments to meet objectives, and evaluate financial records.
2. follow detailed instructions and complete assignment (e.g., project/time management).	2. prioritize, allocate time, prepare and follow schedule to complete a project.	2. select, design, complete and evaluate a project (e.g., manage multiple facets of a project)(
3. recognize time constraints (e.g., personal time).	3. apply appropriate time to task.	3. manage multiple priorities and assess effectiveness of outcomes (school, work, family).
4. recognize limitations on physical resources.	4. use physical resources wisely to accomplish a goal.	4. evaluate the use of physical resources.

Career and Vocational/Technical Education Content Standard 3

M3

Students acquire and utilize personal and leadership skills to become successful, productive citizens.

The development of positive personal qualities and leadership is a vital component in career success. This development can be achieved through a variety of methods, which may include Career and Technical Student Organizations.

Benchmark I (by the end of 8th grade)	Benchmark II (grades 9-12)	Benchmark III (concentrators)
<ol style="list-style-type: none"> 1. serve as a positive role model by following the rules, regulations, and policies of the school community. 2. identify personal and work ethics. 3. recognize characteristics of good citizenship. 4. identify methods that can increase a person's self-esteem. 5. observe and recognize diversity. 6. describe several methods of communication. 	<ol style="list-style-type: none"> 1. demonstrate active leadership skills by participation in group activities and projects. 2. demonstrate positive personal and work ethics. 3. demonstrate skills to be a productive citizen. 4. apply self-esteem building practices. 5. demonstrate appreciation for diverse perspective needs and characteristics. 6. practice several methods of effective communication. 	<ol style="list-style-type: none"> 1. assume a leadership role (e.g., team leader, CTSO officer, committee chair). 2. evaluate, compare and contrast positive personal and work ethics. 3. implement and evaluate a successful, productive citizenship activity (i.e., community service project). 4. select methods to constructively build esteem in others as well as self. 5. respect differences and works well with individuals from diverse backgrounds and philosophies. 6. utilize multiple communication methods to complete a class project.

Career and Vocational/Technical Education Content Standard 4

M4

Students acquire and demonstrate current technical skills leading to an occupation.

Rationale: In today's technology-driven society, students must be able to use tools, materials and processes to improve task completion and transfer technical skills within a variety of workplace settings.

Benchmark I (by the end of 8th grade)	Benchmark II (grades 9-12)	Benchmark III (concentrators)
<ol style="list-style-type: none"> 1. identify appropriate technical skills required for selected occupation. 2. practice safe and appropriate use of technology. 	<ol style="list-style-type: none"> 1. practice technical skills and procedures required for an occupation. 2. practice safe and appropriate use of technology. 	<ol style="list-style-type: none"> 1. master the technical skills required for an entry level job or advanced training. 2. practice safe and appropriate use of technology.

3. identify and use the appropriate tools and equipment for the task.	3. select the appropriate tools, equipment, and procedures for the task.	3. master of tools and equipment needed for an entry level job or advanced training.
4. identify and demonstrate appropriate care of technological tools.	4. manage and maintain technological tools and follow troubleshooting protocol.	4. manage and maintain technological systems and follow troubleshooting protocol.
5. follow basic technical instruction.	5. apply technical information to a variety of sources.	5. adapt technical information generated from a variety of technical sources.

***Career and Vocational/Technical Education Content Standard 5
M5***

Students acquire and demonstrate current technical skills leading to an occupation.

Rationale: In today's technology-driven society, students must be able to use tools, materials and processes to improve task completion and transfer technical skills within a variety of workplace settings.

Benchmark I (by the end of 8th grade)	Benchmark II (grades 9-12)	Benchmark III (concentrators)
1. apply academic and technical skills to a class project.	1. practice and demonstrate academic and technical skills to a workplace setting	1. transfer academic and technical skills to the level of industry standards.
2. identify the concepts of entrepreneurship.	2. apply the concepts of entrepreneurship.	2. evaluate and/or design components of a business plan.
3. describe how decisions affect self and others.	3. identify possible outcomes and consequences of decisions.	3. demonstrate decision-making and problem-solving skills.
4. use acceptable industry standard equipment in a school setting.	4. use acceptable industry standard equipment in a school setting.	4. use acceptable industry standard equipment in a school setting.

National Standards for Business Education

INFORMATION TECHNOLOGY

1) Impact on Society **N-IT1**

a) Achievement Standard: Assess the impact of information technology in a global society.

i) Level 1 Performance Expectations

(1) Use technology to achieve academic success and lifelong learning

(2) Identify uses of information technology in the home, school, workplace and global society

(3) Explain how information technologies meet human needs and affects quality of life

- (4) Describe how information technology changes social mores, including approaches toward work, family, school, and other cultures
 - (5) Identify the impact of information technologies on the environment and society – both positive and negative
 - (6) Identify the risks of information technology to personal health, safety and privacy
 - ii) Level 2 Performance Expectations
 - (1) Describe the impact of technology on the knowledge and skills needed for success in the workplace
 - (2) Describe how information technology affects worker-management relationships (e.g., outsource, mobile communications, and cloud computing)
 - (3) Identify and evaluate how information technology developments change the way users do their work
 - (4) Describe how information technology creates greater interdependence among workers, organizations, and nations
 - (5) Explain how information technology has contributed to worker productively and teamwork
 - (6) Analyze the potential societal effect of widespread reliance on information technology
 - (7) Analyze how human ingenuity and technology satisfy specific human needs
 - (8) Evaluate the cause and effect of technological solutions on society
 - iii) Level 3-4 Performance Expectations
 - (1) Analyze how developments in information technology affect the supply/demand characteristics of the job market
 - (2) Illustrate how information technology changes organization structures
 - (3) Examine how information technology changes the breadth and level of worker responsibilities
 - (4) Evaluate how information technology transforms business processes and relationships
 - (5) Assess how information technology changes the manner in which training is offered and implemented
 - (6) Identify emerging trends in information technology and predict influences on business and industry
 - (7) Analyze and compare society's influence on information technology and information technology's influence on society
- 2) Information Literacy **N-IT2**
- a) Achievement Standard: Gather, evaluate, use, cite, and disseminate information from technology sources.
 - i) Level 1 Performance Expectations
 - (1) Use information technology resources to retrieve information
 - (2) Evaluate the credibility and bias of information sources
 - (3) Interpret information for use in decision making
 - (4) Cite information sources appropriately
 - (5) Use search procedures appropriate to type of information, nature of source, and nature of query
 - (6) Discuss copyright rules, creative commons, and regulations
 - (7) Explain plagiarism and its consequences

- ii) Level 2 Performance Expectations
 - (1) Evaluate the accuracy, relevance, and comprehensiveness of retrieved information
 - (2) Draw conclusions and make generalizations based on information gathered
 - (3) Access, exchange, organize, and synthesize information
 - (4) Analyze the effectiveness of information resources to support collaborative tasks, research, publications, communications, and increased productivity
 - iii) Level 3-4 Performance Expectations
 - (1) Synthesize information from data sources to formulate decisions across the curriculum
 - (2) Analyze and use mathematical and/or statistical methods to manipulate data into useful information
 - (3) Present analyzed information in a meaningful format
- 3) Digital Citizenship **N-IT3**
- a) Achievement Standard: Demonstrate respectful, responsible and ethical behavior in a digital world.
 - i) Level 1-2 Performance Expectations
 - (1) Explore the risk and dangers of sharing personal information in a digital world (e.g., digital footprint, cyberbullying)
 - (2) Explore the possibilities and perils of digital communications
 - (3) Discuss and apply internet safety practices
 - (4) Identify how social media is used to learn across the curriculum
 - (5) Discuss basic issues related to responsible use of technology and describe personal or legal consequences of inappropriate use
 - (6) Explain the consequences of illegal and unethical use of information technologies
 - (7) Demonstrate respectful and responsible use and creation of media and technology.
 - (8) Demonstrate legal and ethical behaviors when using information technologies
 - (9) Identify aspects of global connectivity and its implications
 - (10) Demonstrate appropriate etiquette when using information technologies
 - (11) Discuss the process of safely buying and selling online
 - (12) Review acceptable use policies for legal and ethical use of information
 - ii) Level 3-4 Performance Expectations
 - (1) Recognize the importance of your digital footprint and manage it professionally
 - (2) Recognize responsible use of digital commerce
 - (3) Recognize how information technology contributes to lifelong learning
 - (4) Implement organization policies and procedures dealing with legal and ethical issues
 - (5) Compare and contrast various types of license agreements
 - (6) Read, interpret, and adhere to software license agreements and legal mandates
 - (7) Analyze legal and ethical dilemmas within the framework of current laws and legislation
- 4) Devices and Components **N-IT4**
- a) Achievement Standard: Describe current and emerging devices and components; configure, install, and upgrade equipment; diagnose problems; and repair hardware.
 - i) Level 1 performance Expectations
 - (1) Identify devices appropriate for specific tasks
 - (2) Identify the components of devices

- (3) Connect needed external components
- (4) Evaluate the capabilities and limitations of devices for user needs
- (5) Explain the purpose, operation, and care of devices and components
- (6) Identify examples of emerging technologies
- (7) Identify storage options
- ii) Level 2 Performance Expectations
 - (1) Describe the interrelationships between device components and supportive applications
 - (2) Troubleshoot and diagnose applications and devices using appropriate resources
 - (3) Evaluate devices and features to make sound consumer decisions
 - (4) Compare and contrast various storage devices
 - (5) Remove, upgrade, store, and install computer hardware and supportive applications
 - (6) Troubleshoot and repair computer hardware and resolve related application problems
 - (7) Obtain hardware certifications needed for a chosen career path
 - (8) Evaluate and recommend devices to solve specific problems
 - (9) Analyze cost benefit and life cycle of devices
 - (10) Evaluate device vendors, warranties, and purchasing options
- 5) Operating Systems **N-IT5**
 - a) Achievement standard: identify, evaluate, select, install, use upgrade, and customize operating systems. Diagnose and solve problems with various types of operating systems utilities
 - i) Level 1-2 Performance Expectations
 - (1) Navigate the basic operating system
 - (2) Manage files and folders
 - (3) Describe various operating systems, platforms, and utilities
 - (4) Describe features of operating systems that can be personalized
 - (5) Differentiate between operating systems and applications
 - ii) Level 3-4 Performance Expectations
 - (1) Compare and contrast the functions, features, and limitations of different operating systems and utilities
 - (2) Select operating systems and utilities appropriate for specific hardware, software, and tasks
 - (3) Install and customize operating systems and utilities
 - (4) Diagnose and repair installation and operational problems of operating systems
 - (5) Identify and use appropriate help resources to install, configure, upgrade, diagnose, and repair operating systems and utilities
 - (6) Maintain operating system security
 - (7) Troubleshoot and repair network operating system connectivity
 - (8) Obtain operating system certifications needed for a chosen career path.
- 6) Input Technologies **N-IT6**
 - a) Achievement Standard: Use various input technologies to enter and manipulate information appropriately.
 - i) Level 1 Performance Expectation
 - (1) Develop proper input techniques

- (2) Identify appropriate input technology for various tasks
 - (3) Describe ergonomic issues related to input technologies
 - ii) Level 2-4 Performance Expectations
 - (1) Select appropriate input technology to optimize performance
 - (2) Apply a variety of input technologies to maximize productivity
 - (3) Use a variety of input technologies to optimize academic and workplace performance
 - (4) Create media using a variety of input technologies
- 7) Applications **N-IT7**
- a) Achievement Standard: Identify, evaluate, select, install, use, upgrade, troubleshoot, and customize applications.
 - i) Level 1 Performance Expectations
 - (1) Identify and use applications appropriate for specific tasks to improve academic achievement across the curriculum
 - (2) Use collaborative application tools to support learning
 - (3) Produce projects that include a variety of media
 - (4) Explore social media applications
 - (5) Identify help features and reference materials to learn applications and solve problems.
 - ii) Level 2 Performance Expectations
 - (1) Use help features and reference materials to learn applications
 - (2) Evaluate and select the appropriate applications to productively complete tasks
 - (3) Identify and use resources to solve problems using application software
 - (4) Compare and contrast application features
 - (5) Install, upgrade, and customize applications
 - iii) Level 3 Performance Expectations
 - (1) Evaluate providers, licensing, and purchasing options
 - (2) Use the advanced features of applications for productivity
 - (3) Evaluate the effectiveness of applications to solve specific problems
 - (4) Diagnose and solve problems resulting from an application's installation and use
 - (5) Use applications to analyze data for making good business decisions
 - (6) Obtain software industry certification needed for a chosen career path
 - (7) Demonstrate the transferability of skills between applications
 - (8) Diagnose and solve application problems
 - (9) Select and integrate productivity software products appropriate for various computer platforms
 - (10) Identify, evaluate, and select software specific to an organizational function and/or industry
 - (11) Analyze cost benefit and life cycle of applications
 - (12) Create training materials for applications
- 8) Digital Media **N-IT8**
- a) Achievement Standard: Use and Create digital media.
 - i) Level 1-2 Performance Expectations
 - (1) Explore current and emerging digital media
 - (2) Select and apply digital media appropriate for specific tasks
 - (3) Create digital media to enhance academic achievement across the curriculum

- (4) Identify and select appropriate delivery methods and tools for digital media projects
- (5) Troubleshoot digital media applications
- (6) Create digital media projects collaboratively
- (7) Use elements of digital and visual literacy appropriately.
- ii) Level 3-4 Performance Expectations
 - (1) Interpret, analyze, and determine meaning for digital media production
 - (2) Create an original high-end, professional quality media production
 - (3) Analyze and select appropriate digital media formats and properties
 - (4) Analyze digital media delivery tools and their effect on business functions
 - (5) Develop digital media delivery system solutions
 - (6) Select and integrate digital media appropriate for various platforms
 - (7) Obtain digital media industry certifications
- 9) Web Development and Design **N-IT9**
 - a) Achievement Standard: Design, develop, test, implement, update, and evaluate web solutions.
 - i) Level 1-2 Performance Expectations
 - (1) Identify and utilize various types of resources for web development
 - (2) Identify and apply appropriate design concepts
 - (3) Design and create web pages
 - (4) Design and create websites incorporating digital media
 - (5) Publish websites on local and remote systems
 - ii) Level 3-4 Performance Expectations
 - (1) Identify client and target audience needs
 - (2) Create content that is readable, accessible, searchable, and sticky
 - (3) Explain and use various internet protocols
 - (4) Research and apply accessibility guidelines and laws affecting website design
 - (5) Assess website content in terms of organization policies and federal and state laws
 - (6) Research and analyze hosting an domain name solutions
 - (7) Compare and contrast the features of web development applications
 - (8) Use digital media optimized for website integration
 - (9) Install and configure web development applications and plug-ins
 - (10) Design, develop and deliver advance web content and applications using authoring tools
 - (11) Build dynamic web elements utilizing scripting, coding, and database integration
 - (12) Create a comprehensive website using industry design standards
 - (13) Test implement, and evaluate the website
 - (14) Analyze web server solutions and platforms
 - (15) Plan, set up, and configure a web server
 - (16) Design e-commerce solutions
 - (17) Troubleshoot advanced server and site dilemmas
 - (18) Analyze work flow and project management procedures relevant to web design
 - (19) Build websites to support mobile platforms
 - (20) Develop organization policy for website content and access

- (21) Connect web servers to application servers for interoperability
- (22) Obtain web development and design industry certification

10) Database Management Systems **N-IT10**

- a) Achievement Standard: Use, plan, develop, and maintain database management systems.
 - i) Level 1 Performance Expectations
 - (1) Retrieve and use information from a database
 - (2) Define basic database terminology
 - ii) Level 2 Performance Expectations
 - (1) Identify the appropriate type of database for a particular situation
 - (2) Identify the variety of data types that are stored in database management systems
 - (3) Create, modify, and extract data from databases for decision making
 - (4) Describe search strategies and use them to solve common information problems
 - (5) Organize and present the results of data retrieval through reports
 - iii) Level 3 Performance Expectations
 - (1) Identify the concepts and terminology for enterprise level databases
 - (2) Plan, develop, and impellent an enterprise level database management system
 - (3) Utilize the application development tools from various vendors to interact with a developed enterprise level database management system
 - (4) Analyze, assess, and troubleshoot enterprise level database management systems and database development tools to create solutions for reaching organizational goals
 - (5) Obtain database management industry certifications
 - iv) Level 4 Performance Expectations
 - (1) Develop retention schedules that adhere to organizational policies and governmental laws
 - (2) Use data mining techniques to extract useful information
 - (3) Explain the options for converting legacy records to electronic database management systems

11) Project Management and Systems Analysis **N-IT11**

- a) Achievement Standard: Analyze and design projects and information systems using appropriate management and development tools.
 - i) Level 1-2 Performance Expectations
 - (1) Define project management principles
 - (2) Use project management to complete projects across the curriculum
 - (3) Build timelines for projects
 - (4) Apply project management concepts for collaborative works projects
- b) Level 3-4 Performance Expectations
 - i) Identify and explain the steps in the systems development life cycle
 - ii) Identify and describe various structured analysis and design tools
 - iii) Use project management to manage information systems development projects
 - iv) Analyze a current system using structured systems analysis tools
 - v) Define system requirements using structured systems analysis tools
 - vi) Incorporate appropriate user interface design principles
 - vii) Identify and apply appropriate application development tools
 - viii) Develop a conversion plan
 - ix) Develop design specifications for record types, output, and data stores

- x) Create appropriate documentation for information systems
 - xi) Develop a testing plan
 - xii) Develop a training plan
 - xiii) Obtain project management industry certification
- 12) Programming and Application Development **N-IT12**
- a) Achievement Standard: Design, develop, test, and implement programs and applications.
 - i) Level 1-2 Performance Expectations
 - (1) Identify and define object-oriented programming terminology
 - (2) Demonstrate the ability to code using object-oriented programming
 - ii) Level 3-4 Performance Expectations
 - (1) Identify and explain programming structures
 - (2) Differentiate between source and object code
 - (3) Choose the appropriate language or application development tool for specific tasks
 - (4) Use scripting languages in application development
 - (5) Apply design principles to programming tasks
 - (6) Develop both procedural and object-oriented programs
 - (7) Select and incorporate appropriate compiler
 - (8) Code common tasks using application development tools
 - (9) Code a program solution in more than one programming language
 - (10) Test, debug, and document code
 - (11) Maintain and reengineer existing code
 - (12) Develop programs and applications for a variety of platforms
 - (13) Design 3D and gaming environments in relationship to the development of applications
 - (14) Explore immersive and visualization techniques
 - (15) Obtain programming industry certifications
- 13) Data and Networking Infrastructures **N-IT13**
- a) Achievement Standard: Develop the skills to design, deploy, and administer networks and telecommunications systems.
 - i) Level 1-2 Performance Expectations
 - (1) Identify basic network connectivity concepts
 - (2) Apply basic networking terminology to a network environment
 - (3) Identify and use basic networking resources
 - (4) Recognize the impact of the convergence of telephony, data, and video communications on networks
 - (5) Configure basic networking devices and security
 - ii) Level 3 Performance Expectations
 - (1) Identify network connectivity hardware and related software
 - (2) Identify network architecture and topologies
 - (3) Identify and distinguish network protocols standards, and theoretical models in actual implementations
 - (4) Identify network hardware infrastructure components including networking media and connection hardware and software
 - (5) Design and develop network infrastructure

- (6) Install and configure network servers, routers, clients, and related hardware and software
- (7) Monitor and manage computer networks
- (8) Apply virtualization technology to servers, networks, storage, and related infrastructure
- (9) Configure and manage network operating systems in multi-vendor environments
- (10) Implement hardware and software security solutions
- (11) Monitor and fortify network security
- (12) Develop enterprise networking solutions
- (13) Obtain telecommunications and networking industry certifications
- iii) Level 4 Performance Expectations
 - (1) Implement a distributed storage solution
 - (2) Develop networking strategic plans
 - (3) Develop policies, protocols and procedures for maintaining enterprising networks
- 14) Information Technology Planning and Acquisition **N-IT14**
 - a) Achievement Standard: Plan the selection and acquisition of information technologies
 - i) Level 1-2 Performance Expectations
 - (1) Identify personal technology needs and budget
 - (2) Identify and research sources of information about information technologies
 - (3) Select appropriate information technologies
 - ii) Level 3-4 Performance Expectations
 - (1) Identify and analyze user needs within an organization
 - (2) Research and identify information technology solutions to meet organizational needs
 - (3) Compare, contrast, and identify potential solutions to meet the needs for an organization
- 15) End-User Support and Training
 - a) Achievement Standard: Develop the technical and interpersonal skills and knowledge to train and support the user community. **N-IT15**
 - i) Level 1-2 Performance Expectations
 - (1) Work in a team to solve problems and share knowledge
 - (2) Tutor and support others in information technology skills
 - (3) Develop technical reading skills
 - (4) Develop technical writing, digital communication, and presentation skills to work effectively with global cultures and diverse individuals
 - (5) Develop critical thinking skills to locate resources to solve problems
 - (6) Develop interpersonal skills
 - (7) Explore online learning opportunities
- 16) Information Technology and Business Functions **N-IT16**
 - a) Achievement Standard: Describe the information technology components of business functions and explain their interrelationships.
 - i) Level 3-4 Performance Expectations
 - (1) Identify and examine information systems and their impact on the enterprise
 - (2) Identify and explain the major components of marketing and sales information technologies and their interrelationships

- (3) Identify and explain the major components of accounting and finance information technologies and their interrelationships
 - (4) Identify and explain the major components of manufacturing and logistics information technologies and their interrelationships
 - (5) Identify and explain the major components of research and development information technologies and their
 - (6) Identify and explain the major components of human resource management information technologies and their interrelationships
- 17) Information Technology Careers **N-IT17**
- a) Achievement Standard: Explore career opportunities in information technology
 - i) Level 1-2 Performance Expectations
 - (1) Identify information technologies commonly used in all careers
 - (2) Discuss the impact of information technology on all careers
 - (3) Identify common tasks performed in information technology careers
 - (4) Identify and explore career opportunities in information technology
 - ii) Level 3-4 Performance Expectations
 - (1) Examine education, experience, skills, and personal requirements for careers in information technology
 - (2) Describe the impact of technological change on information technology positions and the resulting need for lifelong learning
 - (3) Experience an information technology career
 - (4) Identify the benefits of industry certifications and higher education for various information technology careers

Havre Public Schools Technology Curriculum

NINTH GRADE Student Learner Goals: N-IT4, N-IT8/ M3-II, M4-II,

9.01 –Students will use digital tools and resources for problem solving and decision-making.

1. Students will use multiple approaches and diverse perspectives, including Montana American Indians, to explore alternative solutions
 - a) Students will discuss a problem from multiple perspectives
 - b) Students will investigate using multiple approaches with digital tools
 - c) Students will propose alternative solutions
2. Students will collect relevant data and information on a subject from a variety of digital resources
 - a) Students will discuss options for and justify choice of digital resources
 - b) Students will use a variety of digital resources
 - c) Students will collect data and/or information on a specific subject
3. Students will select from an array of digital tools to organize and analyze data from a variety of resources
 - a) Students will discuss options for organizing and analyzing using digital tools
 - b) Students will use a variety of digital tools to organize and analyze data
4. Students will evaluate and synthesize data and information
 - a) Students will discuss data/information, checking for relevance and logic
 - b) Students will analyze data using digital tools
 - c) Students will discuss results of analysis for relevance and logic

- d) Students will discuss possible solutions and make a recommendation based on the data
- 5. Students will share data and information ethically and appropriately cite sources
 - a) Students will examine ethics of data sharing and using citations
 - b) Students will cite sources with appropriate formatting
 - c) Students will apply copyright and intellectual property options (e.g., traditional copyright, creative commons, public domain, etc.) to original works with guidance

9.02 –Students will collaborate and communicate globally in a digital environment: **N-IT4, N-IT8/ M3-II, M4-II**

- 1. Students will evaluate and apply online collaboration and communication tools to exchange ideas and information and participate in projects
 - a) Students will experience online communication tools with teacher assistance (chat, blogging, discussion forums, Skype, Google Tools)
 - b) Students will participate in whole class online collaboration projects (writing projects, class-to-class, and author communication)
- 2. Students will use digital collaboration and communication tools in a safe, legal, and responsible manner
 - a) Students will discuss and follow the district’s student acceptable use policy
 - b) Students will discuss and follow Internet safety practices and responsible cyber citizenship: personal safety, identity protection, bullying prevention, and password protection
 - c) Students will discuss responsible use of digital media and explain possible consequences of misused) Students will collaborate and communicate legally, ethically, safely, and responsibly
- 3. Students will synthesize and communicate the results of research and learning with others using various digital tools
 - a) Students will observe and discuss digital presentations
- 4. Students will use technology in a global learning environment
 - a) Students will establish a connection with others using a digital tool
 - b) Students will collaborate with others outside the classroom that are studying common topics
 - c) Students will participate in a global learning environment

9.03 –Students will apply digital tools and skills with creativity and innovation to express his/herself, construct knowledge, and develop products and processes. **N-IT2, N-IT3/ M3-II, M4-II**

- 1. Students will develop projects combining multiple digital tools to suit a variety of audiences and purposes
 - a) Students will define a task, consider approaches to the task, and select the approach that will suit audience and purpose
 - b) Students will develop a timeline for a project
 - c) Students will gather and discuss available materials, resources, and digital tools
 - d) Students will select at least two digital tools for use in the project
 - e) Students will create a project

2. Students will evaluate and employ a variety of digital tools to effectively produce an original work
 - a) Students will define a task, consider approaches to the task, and select the approach that will suit audience and purpose
 - b) Students will develop a timeline for a project
 - c) Students will gather and discuss available materials, resources, and digital tools
 - d) Students will select at least two digital tools for use in the original work
 - e) Students will create an original work by combining at least two mediums
3. Students will use models and simulations to identify trends, predict outcomes, and investigate information
 - a) Students will define terms: model, simulation, trend, and outcome
 - b) Students will list benefits and limitations of models and simulations
 - c) Students will discuss benefits and limitations of models and simulations
 - d) Students will explain the usefulness of a model/simulation for analyzing a given task
 - e) Students will use model/simulation to investigate a given task
4. Students will evaluate legal protections for intellectual property and apply that understanding to personally created digital media
 - a) Students will define and clarify the limitations of various media resources of the Fair Use Guidelines of the US Copyright Law as it pertains to student projects
 - b) Students will compare and contrast student options and choices regarding copyright of digital media
5. Students will use digital tools and skills to construct new personal understandings
 - a) Students will evaluate how technology affects life (e.g., compare and contrast life in societies with and without digital tools)
 - b) Students will assume shared responsibility for collaborative work while using digital tools
 - c) Students will develop a new personal understanding individually and collaboratively using digital tools

9.04 –Students will possess a functional understanding of technology concepts and operations.
N-IT4, N-IT8/ N-IT4, N-IT8

1. Students will apply and refine the skills needed to communicate information using processing technologies
 - a) Students will click on icons, buttons and menus to produce a desired outcome
 - b) Students will locate and correctly use parts of various digital devices
 2. Students will use appropriate terminology when communicating about current technology
 3. Students will use and transfer current knowledge to explore and implement new technologies as appropriate
-
2. Students will use digital collaboration and communication tools in a safe, legal, and responsible manner and advocate for such use by others
 - a) Students will discuss and follow the district’s student acceptable use policy

- b) Students will discuss and follow Internet safety practices and responsible cyber citizenship: personal safety, identity protection, bullying prevention, and password protection
- c) Students will discuss responsible use of digital media and explain possible consequences of misused) Students will collaborate and communicate legally, ethically, safely, and responsibly
- 3. Students will synthesize and communicate the results of research and learning with others using various digital tools
 - a) Students will observe and discuss digital presentations
- 4. Students will use technology that supports collaboration, learning, and productivity in a global environment
 - a) Students will compare collaborative digital tools
 - b) Students will select the appropriate tool for collaborating with others
 - c) Students will participate in a global learning collaboration by communicating with others outside the classroom
 - b) Students will develop a timeline for a project
 - c) Students will gather and consider available materials, resources, and digital tools
 - d) Students will select at least two digital tools for use in the original work
 - e) Students will create an original work by combining at least two mediums

Resources:

Havre Public Schools Technology Curriculum

[HPS Technology Curriculum](#)

Montana Standards for Career and Vocational Technical Education Content Standards

[Career Tech Standards](#)

National Business Education Association (NBEA) Curriculum Standards

[NBEA Curriculum Standards](#)

Snyder, C., & The Development Team (2015). *Learn-By-Doing* (Google Docs Level 1). Warwick, RI: B.E. Publishing

The Development Team (2015). *Access It!* (2nd Edition). Warwick, RI: B.E. Publishing

The Development Team (2015). *Excel It!* (2nd Edition). Warwick, RI: B.E. Publishing

The Development Team (2015). *Word It!* (2nd Edition). Warwick, RI: B.E. Publishing

The Development Team (2015). *Present It!* (2nd Edition). Warwick, RI: B.E. Publishing

Coding Resources:

Scratch for Educators (<https://scratch.mit.edu/educators/>): Available resources include Educator Guides, Scratch Tutorials, Coding Cards, and Ideas Pages

Creative Computing Curriculum: A collection of ideas, strategies, and activities for an introductory creative computing experience using Scratch designed by the Creative Computing Lab at the Harvard Graduate School of Education.

Creative Computing Curriculum materials can be downloaded as or as Google Slides/PowerPoint to allow for editing and classroom personalization.

[Harvard Education](#)

Scratch Projects: A Comprehensive Course Lesson Plans for Version 3

[Harvard Education](#)

Computational Thinking with Scratch

[Harvard Education](#)

Introduction to Programming with Scratch (designed for educators)

[Csed Uni Edu](#)

ScratchED

[Harvard Education](#)

Scratch Introductory Course from Redware

[Redware Overview](#)

Resources for Coding/HTML/Python

CodeHS (codehs.com) has units for web design, python, and block programming using Karel.

CodeHS instruction also includes a complete learning management system to keep track of student progress.

Code.org's Computer Science Discoveries could be another option as the course is designed for grades 6-10. There is information in the Wednesday Readers regarding Montana teacher trainings planned for this summer.