

11th and 12th Grade Technology Standards

NOTE: Throughout this document, learning targets are identified by type as Knowledge ("K"), Reasoning ("R"), Skill ("S"), or Product ("P").

11th and 12th Grade Technology Standard 1: A student must use digital tools and resources for problem solving and decision making.

Rationale

As personal and global problems become more complex, digital tools are powerful vehicles for data collection and analysis, collaboration, and presentation of solutions. Therefore, all learners must select and use digital tools to make sound, accurate, data-supported decisions and presentations.

Benchmark 1: The student can use multiple approaches and diverse perspectives, including Montana American Indians, to explore alternative solutions.

Learning Targets (Type) 1.1:

- a. I can evaluate a problem from multiple perspectives using a variety of digital tools (e.g. GIS, digital camera, computer applications). (R)
- b. I can formulate possible solutions based on the data collected by the digital tools. (R)
- c. I can use Boolean terms and advanced search settings to narrow or broaden information searches. (S)
- d. I can critique alternative solutions to a problem. (R)
- e. I can justify my selected solution. (R)

Benchmark 2: The student can collect relevant data and information on a subject from a variety of digital resources.

Learning Targets (Type) 1.2:

- a. I can collect data and/or information on a specific subject using a variety of digital resources (e.g. websites, online catalogs, electronic encyclopedias, online databases). (S)
- b. I can critique the data results based on the data collected by the digital tools. (R)
- c. I can demonstrate the ability to work effectively with digital tools. (S)

Benchmark 3: The student can select from an array of digital tools to organize and analyze data from a variety of resources.

Learning Targets (Type) 1.3:

- a. I can make informed decisions using appropriate digital tools and resources. (P)
- b. I can justify my choice of digital tools. (R)

Benchmark 4: The student can evaluate and synthesize data and information.

Learning Targets (Type) 1.4:

- a. I can evaluate digital resources for currency, accuracy, bias, and credibility. (R)
- b. I can formulate possible solutions based on the data collected by the digital tools. (R)
- c. I can analyze data using digital tools (i.e., science probes, graphing calculators, spreadsheets). (R)
- d. I can formulate an experiment and test data collected by the digital tools. (P)

Benchmark 5: The student can share data and information ethically and appropriately cite sources.

Learning Targets (Type) 1.5:

- a. I can cite sources appropriately. (S)
- b. I can create an appropriate citation list. (P)

11th and 12th Grade Technology Standard 2: A student must collaborate and communicate globally in a digital environment.

Rationale

Digital tools can facilitate collaboration and communication by opening pathways to a global learning environment. All learners share the responsibility to practice and advocate the safe and responsible use of these digital tools.

Benchmark 1: The student can evaluate and apply online collaboration and communication tools to exchange ideas and information and participate in projects.

Learning Targets (Type) 2.1:

- a. I can evaluate online collaboration and communication tools to exchange ideas and information. (R)
- b. I can evaluate online collaboration and communication tools to participate in projects with a variety of audiences. (R)
- c. I can select and use the appropriate collaboration/communication tool to participate in projects. (S)

Benchmark 2: The student can use digital collaboration and communication tools in a safe, legal, and responsible manner and advocate for such use by others.

Learning Targets (Type) 2.2:

- a. I can communicate information and ideas respectfully and effectively to multiple audiences using a variety of digital environments. (S)
- b. I can advocate and practice safe, legal, ethical and responsible use of digital tools as defined by school board policy and procedures (AUP) (e.g. cyber citizenship, personal safety, identity protection, bullying prevention, and password protection). (S)
- c. I can determine when it is appropriate and safe to use various personal digital devices. (S)
- d. I can critique the effects of cyber-bullying. (R)
- e. I can demonstrate safe online communication practices regarding personal information (e.g. social network sites). (S)
- f. I can analyze how web advertising influences consumer choices. (R)
- g. I can acknowledge the consequences inherent in the acceptable use policy by signing it. (K)
- h. I can demonstrate when it is appropriate and safe to use various personal digital devices. (S)

Benchmark 3: The student can synthesize and communicate the results of research and learning with others using various digital tools.

Learning Targets (Type) 2.3:

- a. I can collaborate with peers, experts, or others in the global community employing a variety of digital tools to share findings and/or publish in a variety of ways. (S)
- b. I can share and/or publish my research and learn globally with my peers and others through the use of digital tools. (S)

Benchmark 4: The student can apply technology that supports collaboration, learning, and productivity in a global environment.

Learning Targets (Type) 2.4:

- a. I can interact in a global community using digital tools to contribute to a specific global issue (e.g., iEarn-International Education and Resource Network, Global Nomads, skype, wikis, blogs, etc.). (S)

11th and 12th Grade Technology 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.

Rationale

Digital tools can support creative and innovative expression, which is increasingly necessary in our changing world. The use of these tools can also facilitate the realization and fulfillment of one's talents and interests. The education community has the responsibility to provide access to the new avenues for creation and require nuanced understandings of digital citizenship and ownership.

Benchmark 1: The student can develop projects combining multiple digital tools to suit a variety of audiences and purposes.

Learning Targets (Type) 3.1:

- a. I can create an original multimedia project, combining multiple digital tools for the appropriate audience and purpose. (P)
- b. I can define the task. (K)
- c. I can critique multiple approaches and justify the best approach to suit audience and purpose. (R)
- d. I can devise a timeline for a project. (P)
- e. I can collect materials and resources using digital tools (e.g. websites, online catalogs, electronic encyclopedias, online databases, podcasts). (S)

Benchmark 2: The student can evaluate and employ a variety of digital tools to effectively produce an original work.

Learning Targets (Type) 3.2:

- a. I can analyze various digital tools to decide upon the best tools for the project. (R)

Benchmark 3: The student can use models and simulations to identify trends, predict outcomes, and investigate information.

Learning Targets (Type) 3.3:

- a. I can identify trends, predict outcomes, and investigate information using digital models. (K)
- b. I can determine whether or not using a model/simulation would be beneficial in evaluating a situation. (K)
- c. I can select the most appropriate tools for analyzing a real-world problem. (K)
- d. I can predict and test the relationships among interdependent elements of a digital model, simulation, or system. (R)
- e. I can create a model, simulation, or system. (P)
- f. I can predict how one software would be more appropriate to use over another (e.g., using a graphic organizer such as Inspiration to outline a paper instead of using Word; using Prezi instead of PowerPoint, etc.). (R)
- g. I can critique the results of model/simulations. (R)
- h. I can analyze patterns and trends and their logical links to form inferences and forecast possibilities

providing novel insights. (R)

Benchmark 4: The student can evaluate legal protections for intellectual property and apply that understanding to personally-created digital media.

Learning Targets (Type) 3.4:

- a. I can evaluate legal protections for intellectual property. (K)
- b. I can critique the various legal protections for digital works. (R)
- c. I can select appropriate legal protection for my original work. (K)
- d. I can justify the use of chosen legal protection (e.g., copyright, creative commons, public domain, etc.). (R)
- e. I can abide by copyright and intellectual property regulations. (S)

Benchmark 5: The student can use digital tools and skills to construct new personal understandings.

Learning Targets (Type) 3.5:

- a. I can analyze how technology has impacted different industries. (R)
- b. I can evaluate how technology affects my education, leisure, and possible career paths. (R)
- c. I can infer how limited access to technology could handicap earning potential. (R)

11th and 12th Grade Technology Standard 4: A student must possess a functional understanding of technology concepts and operations.

Rationale

Solely teaching application- and device-specific skills is no longer sufficient. While core computer skills are required to harness the power of digital tools, these skills need to be adaptable to the quickly changing technological landscape.

Benchmark 1: The student can apply and refine the skills needed to use communication, information, and processing technologies.

Learning Targets (Type) 4.1:

- a. I can demonstrate speed and accuracy using appropriate data entry tools. (S)
- b. I can compose a multiple section document that applies the most appropriate media and advanced formatting. (P)
- c. I can use spreadsheets to calculate, graph, organize, and present data in a variety of real-world settings. (S)
- d. I can compose media for the web with interactive capabilities. (S)
- e. I can identify and use online help and other support to learn about features of hardware, software, and connectivity as well as to assess and resolve problems. (K,S)
- f. I can perform searches to locate files. (S)
- g. I can convert files (e.g., Word document to PDF or wav to Mp3). (S)

Benchmark 2: The student can use appropriate terminology when communicating about current technology.

Learning Targets (*Type*) 4.2:

- a. I can use appropriate terminology when communicating about current technology. (*K*)

Benchmark 3: The student can transfer current knowledge to learning of new technology skills.

Learning Targets (*Type*) 4.3:

- a. I can transfer understanding of current technologies to new and novel learning situations. (*R*)
- b. I can compare and contrast operating systems. (*R*)
- c. I can adjust to a new program with ease. (*S*)