



ADMINISTRATIVE RULES OF MONTANA



10.53.1108 COMPUTER SCIENCE CONTENT STANDARDS FOR SIXTH THROUGH EIGHTH GRADE

- (1) Computer science algorithms and programming standards for sixth through eighth grades are:
 - (a) use algorithms to address complex problems;
 - (b) create clearly named variables that represent different data types and perform operations on their values;
 - (c) develop programs that combine control structures, including nested loops and compound conditionals;
 - (d) decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs;
 - (e) create procedures with parameters to organize code and make it easier to reuse;
 - (f) seek and incorporate feedback from team members and users to refine a solution that meets user needs;
 - (g) incorporate existing code, media, and libraries into original programs, and give attribution;
 - (h) systematically test and refine programs using a range of test cases;
 - (i) distribute tasks and maintain a project timeline when collaboratively developing computational artifacts; and
 - (j) document programs in order to make them easier to follow, test, and debug.
- (2) Computer science computing systems standards for sixth through eighth grades are:
 - (a) recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices;
 - (b) design projects that combine hardware and software components to collect and exchange data; and
 - (c) systematically identify and fix problems with computing devices and their components.
- (3) Computer science data and analysis standards for sixth through eighth grades are:
 - (a) collect data using computational tools and transform the data to make it more useful and reliable;
 - (b) represent data using multiple formats; and
 - (c) refine computational models based on the data they have generated.

- (4) Computer science impacts of computing standards for sixth through eighth grades are:
 - (a) compare tradeoffs associated with computing technologies that affect people's everyday activities and career options in Montana and the world, urban, rural, and reservation communities;
 - (b) discuss issues of bias and accessibility in the design of existing technologies;
 - (c) collaborate with other contributors when creating a computational artifact; and
 - (d) describe tradeoffs between allowing information, personal or intellectual, to be public and keeping information private and secure.
- (5) Computer science networks and the internet standards for sixth through eighth grades are:
 - (a) explain how physical and digital security measures protect electronic information;
 - (b) apply multiple methods of encryption to demonstrate how to securely transmit information; and
 - (c) demonstrate how information is broken down and transmitted through multiple devices over networks and the internet and reassembled at the destination.

Authorizing statute(s): Mont. Const. Art. X, sec. 9, 20-2-121, MCA

Implementing statute(s): Mont. Const. Art. X, sec. 9, 20-2-121, 20-3-106, 20-7-101, MCA

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