Montana Computer Science

Grades 6-8

When a district incorporates or integrates computer science content into district curriculum or offers a course in computer science, the following skills at each grade level apply

1. **fostering an inclusive computing culture** CS.1.K12
2. **collaborating around computing** CS.2.K12
3. **recognizing and defining computational problems** CS.3.K12
4. **developing and using abstractions** CS.4.K12
5. **creating computational artifacts** CS.5.K12
6. **testing and refining computational artifacts** CS.6.K12
7. **communicating about computing.** CS.7.K12

Computer science algorithms and programming standards for sixth through eighth grades are that each student will CS.AP.6-8

1. **use algorithms to address complex problems** CS.AP.6-8.1
2. **create clearly named variables that represent different data types and perform operations on their values** CS.AP.6-8.2
3. **develop programs that combine control structures, including nested loops and compound conditionals** CS.AP.6-8.3
4. **decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs** CS.AP.6-8.4
5. **create procedures with parameters to organize code and make it easier to reuse** CS.AP.6-8.5
6. **seek and incorporate feedback from team members and users to refine a solution that meets user needs** CS.AP.6-8.6
7. **incorporate existing code, media, and libraries into original programs, and give attribution** CS.AP.6-8.7
8. **systematically test and refine programs using a range of test cases** CS.AP.6-8.8
9. **distribute tasks and maintain a project timeline when collaboratively developing computational artifacts** CS.AP.6-8.9

Skip to main content

10. **document programs in order to make them easier to follow, test, and debug** CS.AP.6-8.10

Computer science computing systems standards for sixth through eighth grades are that each student will CS.CS.6-8	1 **recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices** CS.CS.6-8.1
	2 **design projects that combine hardware and software components to collect and exchange data** CS.CS.6-8.2
	3 **systematically identify and fix problems with computing devices and their components.** CS.CS.6-8.3
Computer science data and analysis standards for sixth through eighth grades are that each student will CS.DA.6-8	1 **collect data using computational tools and transform the data to make it more useful and reliable** CS.DA.6-8.1
	2 **represent data using multiple formats** CS.DA.6-8.2
	3 **refine computational models based on the data they have generated.** CS.DA.6-8.3
Computer science impacts of computing standards for sixth through eighth grades are that each student will CS.IC.6-8	1 **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** CS.IC.6-8.1
	2 **discuss issues of bias and accessibility in the design of existing technologies** CS.IC.6-8.2
	3 **collaborate with other contributors when creating a computational artifact** CS.IC.6-8.3
	4 **describe tradeoffs between allowing information, personal or intellectual, to be public and keeping information private and secure** CS.IC.6-8.4
Computer science networks and the internet standards for sixth through eighth grades are that each student will CS.NI.6-8	1 **explain how physical and digital security measures protect electronic information** CS.NI.6-8.1
	2 **apply multiple methods of encryption to demonstrate how to securely transmit information** CS.NI.6-8.2
	3 **demonstrate how information is broken down and transmitted through multiple devices over networks and the internet and reassembled at the destination** CS.NI.6-8.3