



Ohio's Learning Standards

Computer Science Grade 8

ADOPTED DECEMBER 2018

Grade 8

COMPUTING SYSTEMS

Devices

CS.D.8.a Evaluate the advantages and limitations of existing computing devices to recommend design improvements based on analysis of how users interact with the device.

Hardware and Software

CS.HS.8.a Design projects that combine hardware and software components that could complete a task.

Troubleshooting

CS.T.8.a Use a systematic process to identify and evaluate the source of a routine computing problem. Select the best solution to solve the computing problem and communicate the solution to others.

NETWORKS AND THE INTERNET

Networking

NI.N.8.a Model the role of hardware components to diagram the infrastructure of networks and the internet (including cloud servers).

NI.N.8.b Model protocols (i.e., rules) and explain why they are used to transmit data across networks and the internet.

NI.N.8.c Explain how a system responds when information is lost to understand the effect it has on the transferred information.

Cybersecurity

NI.C.8.a Explain how physical and digital security measures are used to protect electronic information.

NI.C.8.b Compare and contrast the effects of different types of malware to determine strategies for how to protect devices.

DATA AND ANALYSIS

Data Collection and Storage

DA.DCS.8.a Interpret digital data collection tools to manage information effectively.

DA.DCS.8.b Identify data storage systems to define how data is stored and accessed.

DA.DCS.8.c Create a logical file structure to organize data in different storage systems to support individual and collaborative work.

Visualization and Communication

DA.VC.8.a Evaluate data to construct a model or representation.

DA.VC.8.b Create a spreadsheet utilizing formulas, functions and graphs to represent and analyze data.

Inference and Modeling

DA.IM.8.a Create and analyze models and simulations to accurately hypothesize a real-world situation.

ALGORITHMIC THINKING AND PROGRAMMING

Algorithms

ATP.A.8.a Create multiple pseudocode to solve a multi-step process and justify the most efficient solution.

Variables and Data Representation

ATP.VDR.8.a Analyze test cases and determine the range of valid solutions.

ATP.VDR.8.b Use a data structure to represent a collection.

Control Structures

ATP.CS.8.a Use and apply decisions and loops in a program to solve a problem.

Modularity

ATP.M.8.a Decompose problems and subproblems into parts to facilitate the design, implementation and review of complex programs.

Program Development

ATP.PD.8.a Write code that utilizes algorithms, variables and control structures to solve problems or as a creative expression.

ATP.PD.8.b Systematically test and refine programs using a range of test cases.

ATP.PD.8.c Use procedures that utilize parameters to pass values.

IMPACTS OF COMPUTING

Culture

IC.Cu.8.a Compare current technologies and how they affect the current economy.

IC.Cu.8.b Propose potential guidelines/standards/criteria to positively impact bias and accessibility in the design of future technologies.

IC.Cu.8.c Identify and explore careers related to the field of computer science.

IC.Cu.8.d Explain how computing impacts innovation in other fields.

Social Interactions

IC.SI.8.a Evaluate the impacts of electronic communication on personal relationships to be able to evaluate differences between face-to-face and electronic communication.

Safety, Law and Ethics

IC.SLE.8.a Explain user privacy concerns related to the collection and generation of data that may not be evident through automated processes.

IC.SLE.8.b Describe the social and economic implications of privacy in the context of safety, law or ethics to be global digital citizens.

IC.SLE.8.c Identify ethical and legal security measures used to protect electronic information.

IC.SLE.8.d Provide appropriate credit when using resources or artifacts that are not our own.