



Ohio's Learning Standards

Computer Science Grade 4

ADOPTED DECEMBER 2018

Grade 4

COMPUTING SYSTEMS

Devices

CS.D.4.a Explore external components (i.e., parts) of a computing system and their function to understand and describe the role they play in a computer system.

Hardware and Software

CS.HS.4.a Select and use digital learning tools/devices to support planning, implementing and reflecting on a defined task.

Troubleshooting

CS.T.4.a Diagnose problems and select an appropriate solution from a list of problems and solutions to resolve hardware and software issues.

NETWORKS AND THE INTERNET

Networking

NI.N.4.a Describe how information is broken down to be transmitted over a network to help students gain a better understanding of the internet and networks.

NI.N.4.b Describe network addresses, names and rules (i.e., protocols) to share or receive information from the global community.

Cybersecurity

NI.C.4.a Describe what information should be protected and the importance of a secure password to protect information.

DATA AND ANALYSIS

Data Collection and Storage

DA.DCS.4.a Gather and organize multiple quantitative data elements using a tool to perform various tasks.

DA.DCS.4.b Identify techniques and formats to store, process and retrieve different types of information.

Visualization and Communication

DA.VC.4.a Organize data into subsets to provide different views or commonalities and present insights gained using visual or other types of representations.

Inference and Modeling

DA.IM.4.a Utilize data to make predictions and discuss whether there is adequate data to make reliable predictions.

ALGORITHMIC THINKING AND PROGRAMMING

Algorithms

ATP.A.4.a Construct and refine an algorithm to accomplish a given task.

Variables and Data Representation

ATP.VDR.4.a Identify and use a variable, a placeholder for storing a value, to understand how it works in a multi-step process (i.e., algorithm).

Control Structures

ATP.CS.4.a Create a program using sequences, events, loops and conditionals to solve a problem.

Modularity

ATP.M.4.a Decompose (i.e., break down) the steps needed or not needed (i.e., abstraction) into precise sequences of instructions to design an algorithm.

Program Development

ATP.PD.4.a Use a design process to plan and develop a program that addresses a multi-step problem.

ATP.PD.4.b Using guided questions, work through a program to identify errors and discuss possible solutions to repair the program.

IMPACTS OF COMPUTING

Culture

IC.Cu.4.a List examples of computing technologies that have changed the global community to express how those technologies influenced and are influenced by cultural practice.

IC.Cu.4.b Identify and anticipate diverse user needs to increase accessibility to all users.

Social Interactions

IC.SI.4.a Collaborate and consider diverse perspectives to improve digital artifacts.

Safety, Law and Ethics

IC.SLE.4.a Use public domain or Creative Commons media, and refrain from copying or using material created by others without permission.

IC.SLE.4.b Explain why information should be shared or kept private to protect student identity.

IC.SLE.4.c Communicate the importance of protecting your digital footprint.