Ohio’s Learning Standards

Computer Science Grade 6

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Ohio | Department of Education

Grade 6

COMPUTING SYSTEMS

Devices

CS.D.6.a Identify the benefits and limitations of a given computing device's functions (including individual components) to explain how the functions and components work together to create the computing system.

Hardware and Software

CS.HS.6.a Identify ways that hardware and software work together as a system to collect and exchange data.

Troubleshooting

CS.T.6.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.6.a Identify the role of hardware components to understand the infrastructure of networks and the internet (including cloud servers).

NI.N.6.b Identify protocols (i.e., rules) and explain why they are used to transmit data across networks and the internet.

Cybersecurity

NI.C.6.a Identify cybersecurity concerns and measures needed to protect electronic information.

NI.C.6.b Identify the different types of malware to understand threats to data security.

NI.C.6.c Identify ways to protect private information.

DATA AND ANALYSIS

Data Collection and Storage

DA.DCS.6.a Identify and use an appropriate digital data collection tool to compile information.

DA.DCS.6.b Select and utilize appropriate file formats to organize collected data.

DA.DCS.6.c Utilize a file structure to logically organize data to support individual and collaborative work.

Visualization and Communication

DA.VC.6.a Identify and label patterns in models or representations to infer connections between data sets.

DA.VC.6.b Create a spreadsheet utilizing formulas, functions and graphs to represent and analyze data.

Inference and Modeling

DA.IM.6.a Identify and utilize data sets to support or refute a hypothesis.

ALGORITHMIC THINKING AND PROGRAMMING

Algorithms

ATP.A.6.a Compare and refine multiple algorithms for the same task to determine which is the most efficient.

Variables and Data Representation

ATP.VDR.6.a Identify unknown values that need to be represented by a variable within a multi-step process.

ATP.VDR.6.b Create variables and use them within a multi-step process.

Control Structures

ATP.CS.6.a Identify and trace decisions and loops that exist in a multi-step process within a program.

Modularity

ATP.M.6.a Decompose problems into parts to facilitate the design, implementation and review of programs.

Program Development

ATP.PD.6.a Write code that utilizes algorithms, variables and control structures to solve problems or as a creative expression.

ATP.PD.6.b Test and trace to debug and refine code.

IMPACTS OF COMPUTING

Culture

IC.Cu.6.a Identify the change that current technologies have on people's everyday activities to understand the impact within a society.

IC.Cu.6.b Identify issues of bias and accessibility in the design of existing technologies to address equality and equity in society.

IC.Cu.6.c Identify and explore careers related to the field of computer science.

Social Interactions

IC.SI.6.a Analyze and present beneficial and harmful effects of electronic communications to understand their impacts on interpersonal, global, economic, political, business and cultural interactions.

Safety, Law and Ethics

IC.SLE.6.a Describe tradeoffs between allowing information to be public and keeping information private and secure to inform decision making.

IC.SLE.6.b Identify the social and economic implications of privacy in the context of safety, law or ethics to understand how privacy impacts these areas.

IC.SLE.6.c Evaluate the development of new technologies in communication, entertainment and business to understand the impact.

IC.SLE.6.d Provide appropriate credit when using resources or artifacts that are not our own.

IC.SLE.6.e Differentiate between the appropriate and inappropriate content on the internet and identify unethical and illegal online behavior.