Missouri Computer Science

4th Grade

Computing Systems

Hardware & Software

1 Model that information is translated, transmitted and processed in order to flow through hardware and software. 4.CS.HS.01

Troubleshooting

1 Identify, using accurate terminology, simple hardware and software problems that may occur during everyday use, discuss problems with peers and adults and apply strategies for solving these problems (e.g., rebooting the computing device, checking the power, force shut down of an application). 4.CS.T.01

Networks & the Internet

Network Communication & Organization

1 Explain how information is broken down into packets, transmitted through multiple computing devices over networks and the internet and reassembled at the destination. 4.NI.NCO.01

Cybersecurity

1 Discuss real-world cybersecurity problems and identify strategies for how personal information can be protected. 4.NI.C.01

Data & Analysis

Storage

1 Choose different storage locations (e.g., physical, shared, cloud) based on the type of file, storage requirements (e.g., file size, availability, available memory) and sharing requirements. 4.DA.S.01

Collection, Visualization & Transformation

1 Organize and present collected data visually to highlight comparisons. 4.DA.CVT.01

Inference & Models

1 Determine how the accuracy of conclusions are influenced by the amount of useful and reliable data collected. 4.DA.IM.01

Algorithms & Programming

Algorithms

1 Compare and simplify multiple algorithms (sets of step-by-step instructions) for accomplishing the same task verbally and kinesthetically, with robot devices or a programming language. 4.AP.A.01

Variables

1 Create programs that use variables to store and modify grade level appropriate data. 4.AP.V.01

Control

1 Create a program using control structures (e.g., sequence, conditionals, interactive-looping) to solve a problem or express ideas both independently and collaboratively. 4.AP.C.01

Modularity

1 Decompose (break down) large problems into smaller, manageable sub problems to facilitate the program development process. 4.AP.M.01

2 With grade appropriate complexity, modify, remix or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features. 4.AP.M.02

Program Development

1 Use an iterative and collaborative process to plan the development of a program that includes user preferences while solving simple problems. 4.AP.PD.01

2 Observe intellectual property rights and give appropriate credit when creating or remixing programs. 4.AP.PD.02

3 Analyze, create and debug a program that includes sequencing, repetition, conditionals and variables in a programming language. 4.AP.PD.03

4 Communicate and explain your program development using comments, presentations and interactive demonstrations. 4.AP.PD.04

Impacts of Computing

Culture

1 Give examples of computing technologies that have changed the world and express how those technologies influence, and are influenced by, cultural practices. 4.IC.C.01

2 Brainstorm problems and ways to improve computing devices to increase accessibility to all users. 4.IC.C.02

Social Interactions

1 Develop a code of conduct, explain and practice grade-level appropriate behavior and responsibilities while participating in an online community (e.g., using strong passwords, creating a positive online community, recognizing spam and what to do about it, citing online sources). Identify and report inappropriate behavior and know how to report cyberbullying. 4.IC.SI.01

Safety, Law & Ethics

1 Discuss the social impact of violating intellectual property rights. 4.IC.SLE.01

2 Discuss and understand the implications of a negative digital footprint. 4.IC.SLE.02