Maryland Computer Science

Grade 4

Computing Systems CS

D. Devices D

1 Describe how internal and external parts of computing devices function to form a system. 4.CS.D.01

HS. Hardware & Software HS

1 Identify and describe a variety of ways computer hardware and software work together as a system to accomplish a task, using appropriate technical terminology (e.g., input, output, processors, sensors, storage). 4.CS.HS.01

T. Troubleshooting T

1 Identify, using appropriate technical terminology, simple hardware and software problems that may occur during everyday use, discuss problems with peers and adults, and apply various strategies for solving these problems (e.g., rebooting the device, checking the power, forced shutdown of an application, running anti-virus). 4.CS.T.01

Networks and the Internet NI

NCO. Network Communication & Organization NCO

1 Summarize how information is sent and received over physical and wireless pathways (e.g., information is deconstructed in smaller pieces called packets, transmitted to final destination, and reassembled). 4.NI.NCO.01

C. Cybersecurity C

1 Identify problems that relate to unsecure networks and inappropriate use of computing devices and potential subsequent consequences 4.NI.C.01

Not addressed at this level.

Data Analysis DA

S. Storage S

1 Store information in various formats for specific purposes (e.g., file type, file size, file compression). 4.DA.S.01

CVT. Collection, Visualization & Transformation CVT

1 Organize and present collected data in a variety of visual formats to emphasize particular aspects or parts of the data set to make interpretation easier. 4.DA.CVT.01

IM. Inference & Models IM

1 Discuss the potential accuracy of conclusions and predictions based on the adequacy of the data set (number of data). 4.DA.IM.01

Algorithms and Programming AP

A. Algorithms A

1 Develop, compare, and refine multiple algorithms for the same task 4.AP.A.01

V. Variables V

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

C. Control C

1 Create programs using a programming language that includes sequences, loops, conditionals,, and variables that utilize mathematics operations to manipulate values in order to solve a problem or express an idea. 4.AP.C.01

M. Modularity M

1 Decompose a large problem into smaller, manageable sub-problems to facilitate the program development process. 4.AP.M.01

2 Modify, remix, or incorporate portions of an existing program into one's own work, to develop or add more advanced features (grade-level appropriate). 4.AP.M.02

PD. Program Development PD

1 Use an iterative process to plan the development if a program by including others' perspectives and considering user preferences while solving simple problems. 4.AP.PD.01

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

3 Create and debug a program or algorithm that includes sequencing, repetition, and variables in a programming language 4.AP.PD.03

4 Communicate and explain program development to peers and adults using comments, presentations, and demonstrations 4.AP.PD.04

Impacts of Computing IC

C. Culture and Diversity C

1 Summarize how different technologies created by people from diverse backgrounds have contributed to computing and helped to change the world. 4.IC.C.01

2 Brainstorm solutions to improve accessibility/usability and ways computing could be improved to increase accessibility for all users. 4.IC.C.02

SI. Social Interactions SI

1. Develop a code of conduct, explain, and practice grade-level appropriate behavior and responsibilities while participating online. Identify and report inappropriate behavior. 4.IC.SI.01
2. Discuss ways existing devices or computational products can be improved by collaborating with peers to gain their diverse perspectives. 4.IC.SI.02

SLE. Safety, Law & Ethics SLE

1. Observe intellectual property law and give appropriate credit when using resources. 4.IC.SLE.01