Alaska Computer Science

Grade 4

Computing Systems

Devices

1 Define and discuss how computer hardware and software work together as a system to accomplish tasks (e.g., input, output, processor, sensors, and storage). 4.CS.D.01

Hardware and Software

1 Define and discuss how information flows through hardware and software to accomplish tasks using binary. 4.CS.HS.01

Troubleshooting

1 Identify and research simple hardware and software problems that may occur during everyday use. 4.CS.T.01

Network and the Internet

Network Communication and Organization

1 Recognize and explain how information is sent and received over both physical and wireless paths. 4.NI.NCO.01

Cybersecurity

1 Define cybersecurity and discuss real-world cybersecurity problems and how physical and digital personal information can be protected. 4.NI.C.01

Data Analysis

Storage

1 Explain how many kilobytes make one megabyte, and how many megabytes make one gigabyte. 4.DA.S.01

Collection, Visualization and Transformation

1 Collect and organize data to highlight and display relationships. 4.DA.CVT.01

Inference and Models

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

Algorithms and Programming

Algorithms

1 Create, compare & refine multiple algorithms for the same task. 4.AP.A.01

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ariables

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

Modularity

1 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.01

Program Development

1 Create and debug programs using variables, loops, functions that intake, store, and display data. 4.AP.PD.01

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

Community, Global and Ethical Impacts

Culture

1 Discuss ongoing trends in technologies that have changed the world, and express how those trends influence and are influenced by cultural practices. 4.CGEI.C.01

2 Brainstorm ways to improve the accessibility and usability of technology pro ducts for the diverse needs and wants of users. 4.CGEI.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. Identify and report inappropriate behavior. 4.CGEI.SI.01

2 As a collaborative team, consider and leverage each other’s diverse perspectives on improving a computational product. 4.CGEI.SI.02

Safety, Law and Ethics

1 Discuss the social impact of violating intellectual property rights. Use public domain or creative commons media, and refrain from copying or using material created by others without permission. 4.CGEI.SLE.01