Kansas Computer Science

Grades 6-8

Computing Systems CS

D. Devices D

1 Develop and implement a process to evaluate existing computing devices and recommend improvements to design based on analysis of how other users interact with the device. MG.CS.D.01

HS. Hardware and Software HS

1 Model a computing system involving multiple considerations and potential tradeoffs of software and hardware, such as functionality, cost, size, speed, accessibility, and aesthetics MG.CS.HS.01

IO. Input and Output IO

1 Know and apply grade-level appropriate skills with input and output devices. MG.CS.IO.01

T. Troubleshooting T

1 Systematically identify, fix, and document increasingly complex software and hardware problems with computing devices and their components. MG.CS.T.01

Networks & the Internet NI

NCO. Network Communication & Organization NCO

1 Explain protocols and their importance to data transmission; model how packets are broken down into smaller pieces and how they are delivered. MG.NI.NCO.01

C. Cybersecurity C

1 Evaluate physical and digital procedures that could be implemented to protect electronic data/information; explain the impacts of hacking, ransomware, scams, fake scans, and ethical/legal concerns. MG.NI.C.01

2 Compare the advantages and disadvantages of multiple methods of encryption to model the secure transmission of information. MG.NI.C.02

Data Analysis DA

S. Storage S

1 Analyze multiple methods of representing data and choose the most appropriate method for representing data. MG.DA.S.01

Collection C

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1 Develop, implement, and refine a process that utilizes computational tools to collect meaningful data. MG.DA.C.01

CVT. Visualization & Transformation CVT

1 Develop, implement, and refine a process to make data more useful and reliable. MG.DA.CVT.01

IM. Inference and Models IM

1 Refine computational models based on the data generated by the models. MG.DA.IM.01

Algorithms and Programming AP

A. Algorithms A

1 Design algorithms in natural language, flow and control diagrams, comments within code, and/or pseudocode to solve complex problems. MG.AP.A.01

V. Variables V

1 Create programs using variables with purposeful and thoughtful naming conventions for identifiers to improve program readability. MG.AP.V.01

C. Control C

1 Develop programs that utilize combinations of nested repetition, compound conditionals, procedures without parameters, and the manipulation of variables representing different data types. MG.AP.C.01

M. Modularity M

1 Decompose problems and subproblems into parts to facilitate the design, implementation, and review of complex programs. MG.AP.M.01

PD. Program Development PD

1 Seek and incorporate feedback from team members and users to refine a solution to a problem that meets the needs of diverse users. MG.AP.PD.01

2 Incorporate existing code, media, and libraries into original programs of increasing complexity and give attribution. MG.AP.PD.02

3 Systematically test and refine programs using a range of student created inputs. MG.AP.PD.03

4 Explain how effective communication between participants is required for successful collaboration when developing computational artifacts. MG.AP.PD.04

5 Document text-based programs of increasing complexity in order to make them easier to follow, test, and debug. MG.AP.PD.05

Impacts of Computing IC

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C. Culture C

1 Describe the trade-offs associated with computing technologies (e.g. automation), explaining their effects on economies and global societies, and explore careers related to the field of computer science. MG.IC.C.01

2 Evaluate and improve the design of existing technologies to meet the needs of diverse users and increase accessibility and usability. MG.IC.C.02

SI. Social Interactions SI

1 Communicate and publish key ideas and details individually or collaboratively in a way that informs, persuades, and/or entertains using a variety of digital tools and media-rich resources. Describe and use safe, appropriate, and responsible practices (netiquette) when participating in online communities (e.g., discussion groups, blogs, social networking sites). MG.IC.SI.01

H. History H

1 Identify and describe how the prominent figures in computer science have impacted and/or progressed the field. MG.IC.H.01

SLE. Safety, Law, & Ethics SLE

1 Discuss the social impacts and ethical considerations associated with cybersecurity, including the positive and malicious purposes of hacking. MG.IC.SLE.01

CP. Community Partnerships CP

1 Formulate a computer-science based solution for a problem or issue by gathering input from local / regional industry members. MG.IC.CP.01