Oklahoma Computer Science

Eighth Grade

Computing Systems 8.CS

D. Devices 8.CS.D

1 Develop and implement a process to evaluate existing computing devices and recommend improvements to the design based on how other users interact with the device. 8.CS.D.01

HS. Hardware & Software 8.CS.HS

1 Design and refine projects that combine hardware and software components to collect and exchange data. 8.CS.HS.01

T. Troubleshooting 8.CS.T

1 Systematically identify, resolve, and document complex software and hardware problems with computing devices and their components. 8.CS.T.01

Networks & The Internet 8.NI

NCO. Network Communication & Organization 8.NI.NCO

1 Explain protocols and their importance to data transmission; model how packets are broken down into smaller pieces and how they are delivered. 8.NI.NCO.01

CY. Cybersecurity 8.NI.CY

1 Evaluate physical and digital procedures that could be implemented to protect electronic data/information; explain the impacts of cybersecurity threats and attacks. 8.NI.CY.01

2 Compare the advantages and disadvantages of methods of encryption to model the secure transmission of information. 8.NI.CY.02

Data Analysis 8.DA

S. Storage 8.DA.S

1 Analyze multiple methods of representing the same data and justify the most appropriate method for representing data. 8.DA.S.01

CVT. Collection, Visualization, & Transformation 8.DA.CVT

1 Develop, implement, and refine a process that utilizes computational tools to collect and transform data to make it more useful and reliable. 8.DA.CVT.01

IM. Inference & Models 8.DA.IM

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1 Refine computational models based on the data generated by the models. 8.DA.IM.01

Algorithms & Programming 8.AP

A. Algorithms 8.AP.A

1 Design algorithms in natural language, flow and control diagrams, comments within code, and/or pseudocode to solve complex problems. 8.AP.A.01

V. Variables 8.AP.V

Students will continue to apply the standards and practices from the previous grade levels.

C. Control 8.AP.C

1 Develop programs that utilize combinations of nested loops, compound conditionals, procedures without parameters, and the manipulation of variables representing different data types. 8.AP.C.01

M. Modularity 8.AP.M

1 Decompose problems and subproblems into parts to facilitate the design, implementation, and review of complex programs. 8.AP.M.01

PD. Program Development 8.AP.PD

1 Seek and incorporate feedback from team members and users to refine a solution to a problem that meets the needs of different users. 8.AP.PD.01

2 Incorporate existing code, media, and libraries into original programs of increasing complexity and give attribution. 8.AP.PD.02

3 Systematically test and refine programs using a range of student created inputs. 8.AP.PD.03

4 Model effective communication between participants and demonstrate successful collaboration when developing computational artifacts. 8.AP.PD.04

5 Document text-based programs of increasing complexity in order to make them easier to follow, test, and debug. 8.AP.PD.05

Impacts of Computing 8.IC

CU. Culture 8.IC.CU

1 Explore careers related to the field of computer science, and explain how computing impacts innovation in various career fields. 8.IC.CU.01

2 Evaluate and improve the design of existing technologies to meet the needs of different users and increase accessibility and usability. 8.IC.CU.02

SI. Social Interactions 8.IC.SI

1 Describe and use safe, appropriate, and responsible practices (i.e., netiquette) when participating in online communities and understand the impact of not using safe, appropriate, and responsible practices. 8.IC.SI.01

2 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. 8.IC.SI.02

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SLE. Internet Safety, Law, & Ethics 8.IC.SLE

1 Discuss the social impacts and ethical considerations associated with cybersecurity, including the positive and malicious purposes of hacking. 8.IC.SLE.01