Arizona Computer Science

Grade 7

Concept: Computing Systems (CS) 7.CS

D. Subconcept: Devices (D) 7.CS.D

1 Identify some advantages, disadvantages, and consequences with the design of computer devices based on an analysis of how users interact with devices 7.CS.D.1

HS. Subconcept: Hardware and Software (HS) 7.CS.HS

1 Design projects that combine hardware and software to collect and exchange data. 7.CS.HS.1

T. Subconcept: Troubleshooting (T) 7.CS.T

1 Evaluate strategies to fix problems with computing devices and their components within a system. 7.CS.T.1

Concept: Networks and the Internet (NI) 7.NI

C. Subconcept: Cybersecurity (C) 7.NI.C

1 Evaluate multiple methods of encryption for the secure transmission of information. 7.NI.C.1

2 Explain how physical and digital security measures protect electronic information. 7.NI.C.2

NCO. Subconcept: Network, Communication, and Organization (NCO) 7.NI.NCO

1 Compare and contrast models to understand the many protocols used for data transmission. 7.NI.NCO.1

Concept: Data and Analysis (DA) 7.DA

CVT. Subconcept: Collection, Visualization and Transformation (CVT) 7.DA.CVT

1 Collect and analyze data using computational tools to create models that are meaningful and useful. 7.DA.CVT.1

S. Subconcept: Storage (S) 7.DA.S

1 Use multiple encoding schemes to represent data, including binary and ASCII. 7.DA.S.1

IM. Subconcept: Inference and Models (IM) 7.DA.IM

1 Use computational models and determine the reliability and validity of data they generate. 7.DA.IM.1

Concept: Algorithms and Programming (AP) 7.AP

A. Subconcept: Algorithms (A) 7.AP.A

1. Use planning strategies, such as flowcharts or pseudocode, to develop algorithms to address complex problems. 7.AP.A.1

V. Subconcept: Variables (V) 7.AP.V

1. Compare and contrast variables that represent different data types and perform operations on their values. 7.AP.V.1

C. Subconcept: Control (C) 7.AP.C

1. Design and develop programs that combine control structures, including nested loops and compound conditionals. 7.AP.C.1

M. Subconcept: Modularity (M) 7.AP.M

1. Decompose problems into parts to facilitate the design, implementation, and review of programs. 7.AP.M.1
2. Use procedures with parameters to organize code and make it easier to reuse. 7.AP.M.2

PD. Subconcept: Program Development (PD) 7.AP.PD

1. Seek and incorporate feedback from team members and users to refine a solution that meets user needs. 7.AP.PD.1
2. Incorporate existing code and media into programs, and give attribution. 7.AP.PD.2
3. Systematically test and refine programs using a range of possible inputs. 7.AP.PD.3
4. Distribute and execute tasks while maintaining a project timeline when collaboratively developing computational artifacts. 7.AP.PD.4
5. Document programs to make them easier to follow, test, and debug. 7.AP.PD.5

Concept: Impacts of Computing (IC) 7.IC

C. Subconcept: Culture (C) 7.IC.C

1. Explain how some of the tradeoffs associated with computing technologies can affect people's everyday activities and career options. 7.IC.C.1
2. Discuss how bias and accessibility issues can impact the functionality of existing technologies. 7.IC.C.2

SI. Subconcept: Social Interactions (SI) 7.IC.SI

1. Describe the process for creating a computational product by collaborating with others using digital technologies. 7.IC.SI.1

SLE. Subconcept: Safety, Law, and Ethics (SLE) 7.IC.SLE

1. Identify the benefits and risks associated with sharing information digitally. 7.IC.SLE.1