Kansas Computer Science

# Grade 4

## Computing Systems CS

### D. Devices D

1 Identify and explain how computing devices can be connected to other devices to extend their capabilities. 4.CS.D.01

### HS. Hardware and Software HS

1 Explain how information is translated, transmitted, and processed between hardware and software in order to accomplish tasks. 4.CS.HS.01

### IO. Input and Output IO

1 Demonstrate proper use of grade level appropriate input devices and produce digital artifacts with a controlled audience. 4.CS.IO.01

### T. Troubleshooting T

1 Identify, using accurate terminology, simple hardware and software problems that may occur during everyday use, discuss problems with peers and adults, and apply strategies for solving these problems. 4.CS.T.01

## Networks & the Internet NI

### NCO. Network Communication & Organization NCO

1 Explain how information is sent and received across physical or wireless paths. 4.NI.NCO.01

### C. Cybersecurity C

1 Identify and explain issues related to responsible use of technology and information, and describe personal consequences of inappropriate use. 4.NI.C.01

## Data Analysis DA

### S. Storage S

1 Classify different storage locations (physical, shared, or cloud) based on the type of file, storage requirements, and sharing requirements. 4.DA.S.01

### C. Collection C

1 Gather and manipulate relevant and reliable data using the appropriate digital tool. 4.DA.C.01

### CVT. Visualization & Transformation CVT

1 Organize and present collected data visually to highlight comparisons. 4.DA.CVT.01

### IM. Inference and Models IM

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

## Algorithms and Programming AP

### A. Algorithms A

1 Analyze and refine multiple algorithms for the same task. 4.AP.A.01

### V. Variables V

1 Utilize, create, and modify programs that use variables, with grade level appropriate data. 4.AP.V.01

### C. Control C

1 Create programs using a programming language that utilize sequencing, repetition, conditionals and variables to solve a problem or express ideas both independently and collaboratively. 4.AP.C.01

### M. Modularity M

1 Decompose (break down) large problems into smaller, manageable subproblems. Then form algorithms to solve each subproblem. 4.AP.M.01

2 With grade appropriate complexity, 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.0

### PD. Program Development PD

1 Create a plan using an iterative process to plan the development of a program that includes user preferences while solving simple problems. 4.AP.PD.01

2 Use proper citations and document when ideas are borrowed and changed for their own use (e.g., using pictures created by others, using music created by others, remixing programming projects). 4.AP.PD.2

3 Analyze, debug (identify/fix errors), and create a program that includes sequencing, repetition and variables in a programming language. 4.AP.PD.3

4 Communicate and explain your program development using comments, presentations and demonstrations. 4.AP.PD.4

## Impacts of Computing IC

### C. Culture C

1 Brainstorm problems and ways to improve computing devices to increase accessibility to all users. 4.IC.C.01

### SI. Social Interactions SI

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. (Digital Citizenship - review of all nine components, but focused on Digital Access). 4.IC.SI.01
2. As a team, consider each other's' perspectives on improving a computational product. 4.IC.SI.02

### H. History H

1. Identify and give examples of computing technologies that have changed the world, and express how those technologies influence, and are influenced by, society. 4.IC.H.01

### SLE. Safety, Law, & Ethics SLE

1. Discuss the social impact of violating intellectual property rights. 4.IC.SLE.01

### CP. Community Partnerships CP

1. Design a visual product depicting the connections between computer science and other fields. 4.IC.CP.01