Colorado Computer Science

Grade 4

Computational Thinking

3 Represent, analyze, and visualize data in order to generate new knowledge and capability.

1 Data can be analyzed and presented in ways that reveal predictable patterns and relationships between features. CS.4.1.1

- a Organize and present collected data visually to highlight relationships and support a claim. CS.4.1.1.A
- b Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea. CS.4.1.1.B
- c Give examples of how data can be analyzed to demonstrate relationships between features. CS.4.1.1.C
- d Explain how images are represented digitally in a computer. CS.4.1.1.D

Computing Systems and Networks

4 Use systems thinking to describe networks and common software and hardware components.

1 Hardware and software work together as a system to complete tasks and often communicate via networks to share information. CS.4.2.1

- a Use appropriate terminology in identifying and describing the function of common physical components of computing systems. CS.4.2.1.A
- b Describe how internal and external parts of computing devices function to form a system. CS.4.2.1.B
- c Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination. CS.4.2.1.C
- d Describe network communications. CS.4.2.1.D
- e Identify specific network components. CS.4.2.1.E

Computer Programming

8 Create computational artifacts that consider security from tampering, malicious, or otherwise.

1 Creators of computer programs and other digital artifacts must consider multiple factors when designing content, including accessibility and intellectual property rights. CS.4.3.1

- a Observe intellectual property rights and give appropriate attribution when creating or remixing programs. CS.4.3.1.A
- b Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices. CS.4.3.1.B
- c Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users. CS.4.3.1.

Artificial Intelligence (AI)

10 Use AI tools to analyze and understand the world and to create and inspire ideas.

1 AI tools solve problems through the use of computing technologies. CS.4.5.1

- a Design a solution to a societal problem that makes use of AI technology. CS.4.5.1.A

Digital Citizenship

13 Practice responsible, ethical, and safe use of computing technology and the internet.

1 A digital footprint is a record of what we do online, including the websites and digital spaces we visit, platforms and apps we use, the things we post and the things that others post, like pictures and videos, or comments of us and about us. CS.4.6.1

- a Define the term "digital footprint" and identify the online activities that contribute to it. CS.4.6.1.A
- b Identify ways users are and are not in control of their digital footprint. CS.4.6.1.B
- c Understand what responsibilities they have for the digital footprints of themselves and others. CS.4.6.1.C