North Carolina Computer Science, IT, and Technology Education

# Grades 3-5

## Computing Systems CS

### Devices

1 Evaluate the features available on digital devices to perform a variety of classroom tasks. 35-CS-01

### Hardware and Software

2 Model how computer hardware and software work together as a system to accomplish tasks 35-CS-02

### Troubleshooting

3 Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies. 35-CS-03

## Networks and the Internet NI

### Network Communication and Organization

1 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. 35-NI-01

### Cyber Security

2 Explain your digital footprint and how personal information can be protected. 35-NI-02

## Data and Analysis DA

### Storage

1 Identify the type of data encoded in a file based on file extension. 35-DA-01

### Storage

2 Illustrate the process of file management and version control. 35-DA-02

### Collection, Visualization, & Transformation

3 Organize and present collected data visually to highlight relationships and support a claim. 35-DA-03

### Influence and Models

4 Communicate using data to highlight or predict outcomes. 35-DA-04

## Algorithems and Programming AP

### Algorithms

1 Create multiple algorithms for the same task to determine which is the most accurate and efficient. 35-AP-01

### Variables

2 Create programs that use variables to store and modify data 35-AP-02

### Control

3 Construct programs that include sequences. 35-AP-03

4 Construct programs using simple loops. 35-AP-04

5 Construct programs that implement conditionals. 35-AP-05

### Modularity

6 Decompose problems into smaller, manageable, subproblems to facilitate the program development process. 35-AP-06

7 Modify, remix, or incorporate portions of an existing program into one's own work. 35-AP-07

### Program Development

8 Apply an iterative process to the development of a program by including diverse perspectives and considering user preferences. 35-AP-08

9 Give appropriate attribution when creating or remixing programs while respecting intellectual property rights. 35-AP-09

10 Identify and debug errors in an algorithm or program to ensure it runs as intended. 35-AP-10

11 Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development. 35-AP-11

12 Describe choices made during program development using code comments, presentations, and demonstrations. 35-AP-12

## Impacts of Computing IC

### Culture

1 Compare computing technologies that have changed the world and how they both influence and are influenced by cultural practices 35-IC-01

2 Explore the tools that can be used to improve accessibility and usability of technology products for the diverse needs and wants of users. 35-IC-02

### Social Interactions

3 Seek diverse perspectives with collaboration for the purpose of improving computational artifacts. 35-IC-03

4 Exhibit positive digital citizenship and social responsibility in online interactions. 35-IC-04

**Safety, Law, & Ethics**

5 Utilize public domain or creative commons media, and refrain from copying or using material created by others without permission. 35-IC-05