4.CSY.2 Computing Systems

> *The student will apply troubleshooting strategies when a computing system is not working as intended. (a) Identify hardware, software, and connectivity problems using accurate terminology. (b) Apply troubleshooting strategies to address hardware, software, and connectivity problems.*

Understanding the Standard

Students are expected to identify common computing system and software issues that may arise and be able to use the appropriate strategies to solve these problems. Common troubleshooting strategies include but are not limited to rebooting a machine, checking that power is available, checking that physical and wireless connections are working, and clearing out the working memory by restarting programs or devices. Students should use accurate terminology to describe these problems and solutions.

Term	Definition
Troubleshoot	Identify and correct faults in a computing system.
Hardware	Physical components of a computing system.
Software	The programs used by a computing system.
Connectivity	How well a computing device can communicate with other devices.
Reboot	Turn off a computer and then turn it on again.

Prerequisite Knowledge

Students should have experience with problem-solving and following and creating step-by-step instructions.

Integration Opportunities

English 4.W.1c, 4.RV.1j Have students work collaboratively to create a troubleshooting manual using accurate content-specific vocabulary when identifying common issues in a computing system.

Science 4.1b Use tools and materials to design and/or build a device that solves a specific hardware or software issue.

Music 4.3f,g Review criteria used to evaluate compositions and performances to offer constructive feedback. Compare this process to troubleshooting with computers.

Math 4.MG.6 Troubleshoot a malfunctioning program by testing and fixing errors in the system's ability to classify solid figures, using specific strategies to address hardware, software, and connectivity problems while ensuring accurate identification of shapes based on their properties.

Summary of a Lesson

As a whole class, students will participate in a Chalkboard Splash to create a collection of common problems and issues that arise when using a computing system. Write each issue on an individual sticky note and analyze the notes for similarities and differences to other issues. In pairs, students will design a digital troubleshooting manual (using Twine, Google Slides, or other application) and create step-by-step instructions on how to address and solve one of the issues. Instructions can include images, diagrams, or other graphics. Manuals should include a table of contents that links to the corresponding page. Partner pairs will switch manuals with a team that selected a different issue to test their instructions and offer feedback.