

5.CSY.3 Computing Systems

The student will evaluate and implement troubleshooting strategies when a computing system is not operational. (a) Identify and use troubleshooting protocols to resolve hardware, software, and connectivity issues. (b) Apply prior troubleshooting practices to new problems as they arise.



Integration Opportunities

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. While students have had experience troubleshooting in previous grades, in fifth grade, they should be able to remember and apply previously learned strategies to new situations, and will draft their own protocols for troubleshooting. 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.
Protocol	a standardized set of rules or workflow for completing a task

English 5.RI.3 a, 5.RV.1 k

Accurately use content-specific vocabulary and background knowledge when troubleshooting a non-operational system.

Math 5.CE.4 Have students play the role of computer technicians, identifying and fixing "errors" in numerical expressions by applying the order of operations to ensure correct simplification. Discuss how these troubleshooting steps relate to resolving issues in computing systems.

Science 5.3e When planning an investigation to determine the effects of friction on moving objects, have students identify other variables that might interfere with movement and prepare strategies to address them.

Math 5.MG.2 Display an open-ended question regarding a unit of measurement (perimeter, area, volume) without numbers. Have students determine what information is needed to understand the problem and explain how to solve it.

Prerequisite Knowledge

Students should have experience creating step-by-step instructions and using them to identify errors.

Summary of a Lesson

As a whole group, students will brainstorm a list of common questions they would need to ask in order to diagnose a computer problem (e.g. When does the problem occur? Where does the problem occur? Have you made any updates?) Next, working in pairs, students will use the questions generated to create diagnostic flow charts in Google Drawings (or a similar program) mapping possible pathways and solutions depending on the user's answers. Partners will determine where to start their chart and how to direct the user. Students will then switch their charts with another team to compare and trace their charts checking for any areas in need of correction.



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