

Instructional Scenario

Maintaining, Managing, and Troubleshooting Systems



Course/Duty Area: Advanced Computer Information Systems/Maintaining, Managing, and Troubleshooting Systems

Scenario:

A school's computer lab is experiencing recurring technical issues, such as slow network connections, unresponsive applications, and occasional system crashes. The school administration has tasked a team of students to act as IT specialists to identify and resolve these problems, while also creating a proactive maintenance plan to avoid future issues.

Big Question:

How can effective system maintenance, management, and troubleshooting practices ensure reliable and efficient computer systems?

Focused Questions:

- What are the key steps in diagnosing common system performance issues?
- How can regular maintenance prevent technical problems?
- What tools and techniques are effective for troubleshooting system crashes and errors?
- How can users optimize system settings to improve functionality?
- What role does documentation play in managing and troubleshooting systems?

Student Project or Outcome:

Students will create a Comprehensive Lab Management and Troubleshooting Plan that includes solutions to current issues, a maintenance schedule, and a guide for troubleshooting future problems.

Project-Based Assessment:

- **System Audit Report (30%):** Students perform a mock audit of the lab's systems, identifying potential issues and their causes.
- **Maintenance Plan (30%):** Students design a detailed maintenance schedule, including regular tasks like software updates, backups, and hardware checks.
- **Troubleshooting Simulation (20%):** Students role-play scenarios to troubleshoot and resolve technical problems, such as software errors or network failures.
- **Guide Documentation (10%):** Teams produce a step-by-step troubleshooting guide for common system issues.
- **Presentation (10%):** Students present their findings, plan, and guide to the "administration" (classmates or school staff).

Teacher Resources:

- **Case Studies:** Examples of common system issues and their resolutions
- **Software Tools:** Access to diagnostic tools like Task Manager, Disk Cleanup, and antivirus software
- **Tutorials:** Videos or articles on troubleshooting techniques, such as resolving network issues or reinstalling drivers
- **Mock Data:** Provide pre-set scenarios with details about system errors or maintenance challenges
- **Guest Speaker:** An IT professional to discuss best practices in system management and real-world troubleshooting experiences
- **Rubrics:** Pre-designed rubrics for assessing the audit report, maintenance plan, troubleshooting simulation, and guide documentation

Scenario submitted by Kimberly Grant, Warwick High School, Newport News Public Schools.