



Chapter 2: Safe Lab Procedures and Tool Use



IT Essentials: PC Hardware and Software v4.1

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Chapter 2 Objectives

- 2.1 Explain the purpose of safe working conditions and procedures
- 2.2 Identify tools and software used with personal computer components and their purposes
- 2.3 Implement proper tool use



Safe Lab Procedures and Tool Use

The workplace should have safety guidelines to follow to:

- Protect people from injury
- Protect equipment from damage
- Protect the environment from contamination



Characteristics of a safe workplace

- Clean, organized, and properly lit workspace
- Proper procedures for handling equipment
- Proper disposal or recycling of components containing hazardous materials
- Safety guidelines
 - Most companies require reporting any injuries, including description of safety procedures not followed.
 - Damage to equipment may result in claims for damages from the customer.
 - Types of safety guidelines: General, Electrical, Fire

Types of Interference

- **Electrostatic Discharge (ESD)**
 - Buildup of an electric charge resting on a surface
 - 30 volts of static electricity can damage a computer component.
- **Electromagnetic Interference (EMI)**
 - Intrusion of outside electromagnetic signals in a transmission media, such as copper cabling
 - Sources can be: Man-made, natural events, climate or any source designed to generate electromagnetic energy.
- **Power fluctuations**
 - Voltage in a computer that is not accurate or steady
 - Blackouts, brownouts, noise, spikes, power surges

Procedures to protect the environment

- Computers and peripherals contain materials that can be harmful to the environment.
- We should protect the environment by responsibly disposing and recycling:
 - **Material Safety Data Sheet (MSDS):** Fact sheet summarizing information about material identification, including hazardous ingredients that can affect personal health, fire hazards, and first aid requirements
 - **Proper Disposal:** Policies that specify the procedures for disposing different materials such as batteries, monitors and used printer kits.

Specialized Tools

- Skilled use of tools and software makes the job less difficult and ensures that tasks are performed properly and safely.
- Hardware
 - ESD Tools
 - Hand Tools
 - Cleaning Tools
 - Diagnostic Tools
- Software
 - Disk management tools (Fdisk, Format, Scandisk, Defrag, etc.)
 - Protection software tools (Antivirus, Firewall, etc.)
- Organizational
 - Notes
 - Journal
 - History of repairs
 - Internet Reference



Proper Tool Use

- Safety in the workplace is everyone's responsibility.
- Before cleaning or repairing equipment, check to make sure that your tools are in good condition.

- Proper use of an antistatic wrist strap.

CAUTION: Never wear an antistatic wrist strap if you are repairing a monitor or CRT.

- Proper use of an antistatic mat.
- Proper use of hand tools.
- Proper Use of Cleaning Materials.

CAUTION: Before cleaning any device, turn it off and unplug the device from the power source.

Chapter 2 Summary

- Work in a safe manner to protect both users and equipment.
- Follow all safety guidelines to prevent injuries to yourself and to others.
- Know how to protect equipment from ESD damage.
- Know about and be able to prevent power issues that can cause equipment damage or data loss.

Chapter 2 Summary

- Know which products and supplies require special disposal procedures.
- Familiarize yourself with MSDS sheets for both safety issues and disposal restrictions to help protect the environment.
- Be able to use the correct tools for the task.
- Know how to clean components safely.
- Use organizational tools during computer repairs.

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