

1. **Lab Safety**

**Part 1: Personal Safety**

* What other simple precautions can you take to prevent injury or cause equipment damage while working with computer hardware?

Part 1: Personal Safety

Part 2: Electrical Safety

Part 3: Fire Safety

Part 4: Compliance with Government Regulations

**Part 2: Electrical Safety**

* What can you do to prevent injury or damage to printer parts?

Following electrical safety guidelines helps to prevent electrical fires, injuries, and fatalities.

* What can you do to prevent injury or damage to power supplies for computers?

For example, some printer parts become hot during use. Power supplies contain high voltage.

**Equipment Grounding**

**Perform an internet search to answer the following questions:**

* How do you ground devices, such as PCs and printers?

To protect the technicians, electrical equipment should be grounded to prevent electrocution. If the metal parts in the equipment becomes energized, the equipment ground provides a lower resistant path for the current to flow to the ground rather than through the handler of the faulty device.

* How are large metal equipment racks grounded?

Large metal equipment racks are grounded to ensure safety and protect both the equipment and personnel from electrical faults.

**Part 3: Fire Safety**

Use a web browser or a fire extinguisher to review the proper procedure to use a fire extinguisher to answer the following questions.

* + - * How does the memory aid P-A-S-S help with remembering the basic rules of fire extinguisher operation?

**P - Pull the pin**: This step ensures that the safety pin on the fire extinguisher is removed so that you can operate it. The pin prevents accidental discharge of the extinguisher.

**A - Aim the nozzle**: Point the extinguisher's nozzle at the base of the fire. Targeting the base ensures that you are putting out the source of the flames rather than just the flames themselves.

**S - Squeeze the handle**: Press the handle to release the extinguishing agent. This action starts the flow of the substance used to put out the fire.

**S - Sweep from side to side**: Move the nozzle or hose in a sweeping motion across the base of the fire. This helps ensure that the extinguishing agent covers the entire fire and prevents it from reigniting.

* + - * Each type of fire extinguisher has specific chemicals to fight different types of fires. List the different types of fire extinguishers used in your country or region.

Water Fire Extinguishers:

Foam Fire Extinguishers:

Dry Powder Fire Extinguishers:

Carbon Dioxide (CO2) Fire Extinguishers:

Wet Chemical Fire Extinguishers:

**Part 4: Compliance with Government Regulations**

**Health and Safety Laws**

* Perform an internet search to locate the governing body for health and safety in the workplace for your country. Record the official title and link to the website.

I come from Taiwan. In Taiwan, the apartment call Organization & Features-Occupational Safety and Health and here is the website ([OSHA](https://www.osha.gov.tw/48783/48784/48785/48791/60960/post))

**Building Codes**

* Perform an internet search for your local building codes. List of some of the building codes that is adopted locally.

Here is the website from Taiwan building codes.For Example:

**Chapter 9**

Article 97-1

Examination and approval, construction management, and usage management of the buildings in hillsides shall be prescribed by the central competent authority of construction.

Article 97-2

Disposal of the buildings infringing this Code or orders issued based on this Code shall be prescribed by the Ministry of the Interior.

**Environmental Regulations**

* A business has replaced 50 laptops and looking for a way to disposed of them properly. Find a local facility that can disposed of them properly and describe what will the local facility do with the laptops.

You can bring the 50 laptops to the Staples and they have service can disposed it.

**Reflection Questions**

In your opinion, what is the most important safety rule when servicing a computer? Explain.

I think the most important safety rule is always power off and unplug any computer devices. When you are servicing a computer, because this will protects the components to get suffer or damge.

**2 - Ohm's Law**

Answer the following questions based on electricity and Ohm’s Law. Show all steps when solving problems.

* + - 1. What are the four basic units of electricity? Provide the variable name and symbol, and unit name and symbol.

VoHag(V)⇒Volt(V)

Current(I)⇒Ampers(A)

Risistane(R)⇒Ohm(Ω)

Power(P)⇒Watts(W)

* + - 1. Write the equation for Ohm’s Law.

I=V/R、V=IR、Ｒ=V/I

* + - 1. Re-arrange the Ohm’s Law equation to solve the following:

I =V/R

R =V/I

***ype your answers here.***

* + - 1. Power is equal to voltage multiplied by current(P=VI). Add the missing information in each of the following power equations.

P = VI ***Ty***

P = RI² ***Ty***

P = V2/R***Typ***

***e your answers here.***

* + - 1. The yellow wire connected to a power supply carries 12V. If the power supply provides 60W of power to the yellow wire, how much current is passing through the yellow wire?

V=12 W=60

P=VI => 60=12\*I= 60/12=I => I=5

Ans : I=5

Type your answers here.

* + - 1. There are 3.3V passing through an orange power supply cable, and there are 0.25 ohms of resistance in the orange wire. How much power is supplied to the orange wire by the power supply?

V=3.3 R=0.25

P = V2/R => 10.89/0.25 =43.56

ANS:P=43.56

* + - 1. A wire from the power supply carries 120W of power and 24A of current. What is the voltage supplied to the wire by the power supply?

P=120 I=24

V=P/I => 120/24=5

ANS: Voltage = 5

1. **Inside view of a desktop computer**

* Open the desktop computer and observe the different components installed. And fill the below table for easiness of the reader first row is already filled.

|  |  |
| --- | --- |
| **Observation** | **Usage** |
| 1. RAM | Used to store and retrieve information at a faster rate. |
| 2.PSU | Used to supply power to compnets |
| 3.GPU | Used to initially designed for digital image processing |
| 4.CPU | Used to interprets, processes and executes instructions |
| 5.HHD | Used to store device. |
| 6.MB | Used to house the other computer componets |
| 7.BIOS | Used to help boot the computer and manage the flow of data |
| 9.NorthBridge | Used to handles communication between the CPU and other high-speed components |
| 10.SouthBridge | Used to handles communication between the CPU and other slow-speed components |

* Observe the cables and connectors inside a computer and fill in the below table.

For the easiness of the reader, the first row is already filled. You may need the Internet in this exercise to answer the questions.

|  |  |  |
| --- | --- | --- |
| **Cable name** | **Where does it connect?** | **Number of pins** |
| 1. Molex  2.  3.  4.  5. | Used to power hard drives, optical drives, etc. | 4 pins |
| 2. SATA | Used to connects disk drives | 7 pins |
| 3.Slotted | Used to connects the motherboard | 12 or 10 pins |
| 4.Berg keyed | Used to legacy floppy drives | 4 pins |
| 5.PCIe power | Used to supply power to internal components | 6 or 8 pins |
| 6.Auxiliary power | Used to supply power to different areas of the motherboard | 4 or 8 pins |