Prepare Hand Tools

What is a tool?

- A tool is a hand-held device that aids in accomplishing tasks.
- Tools range from a traditional metal cutting part of a machine to an element of a computer program that activates and controls a specific function.

Preparing for the task to be undertaken includes proper tool selection

1. How do you select the best tool for the job?
- First, know and understand in detail the scope of work to be accomplished
- Second, plan for the scope taking into account the sequence of tasks.

2. Selecting the best tool for each task requires training in the proper use of the tools, field experience in their safe use, and following the manufacturer's guidance and instructions for that specific tool.

3. When obtaining the tool all the associated tooling and consumable parts, as recommended by the manufacturer, must be included. In addition, related consumable parts must also be selected and used according to their manufacturer's instructions.

Safe Use of tools

- Once selected, use the tool for the purpose for which it was designed.
- Not all tools come with detailed instructions, but there are those that do spell out the safety —Do's and Don'ts for your safety.
- If there are set-up/use options, operator judgment must always be based on what is the safest way to use the tool.

Environmental Safety and Health Program requires the following:

- All tools be kept in good condition with regular maintenance
- The right tool be used for the job
- Each tool be examined before use AND damaged or defective tools NOT to be used

- Tools be operated according to manufacturer's instructions
- The right protective equipment for the tool and activity be used

HARDWARE TOOLS

Hardware tools are grouped into four categories:

1. **<u>Electro-Static Discharge (ESD) Tools-</u>** tools used to protect the computer and technician from static electricity.

Anti-Static Wrist Strap

- protects computer equipment when grounded to a computer chassis.

Anti-Static Mat

 - protects computer equipment by preventing static electricity from accumulating on the hardware or on the technician

2. **Hand Tools** – a device used to perform work on a material or a physical system using only hands. It can be manually used employing force or electrically powered using electric current.

Flat-head Screwdriver

- Used to tighten or loosen slotted screws.

Philips-Head Screwdriver

- Used to tighten or loosen cross-slotted screws.

Torx Screwdriver

-Used to tighten or loosen screws that have a star-like depression on the top, a feature that is mainly found on laptops.

T2

T3

T4

T5

T6

Hex Driver

-Used to tighten or loosen nuts in the same way that a screwdriver tightens or loosens screws (sometimes called a nut driver).

Needle Nose Plier

Needle-nose pliers, also known as long-nose pliers and snipe-nose pliers, are both cutting and holding pliers used by electricians to bend, re-position, and snip wire.

Combination Pliers

most typically used for gripping, compressing, bending, twisting, extracting and cutting various materials.

Wire Cutter

Used to strip and cut wires.

Wire Stripper

A wire stripper is used to remove the insulation from wire so that it can be twisted to other wires or crimped to connectors to make a cable.
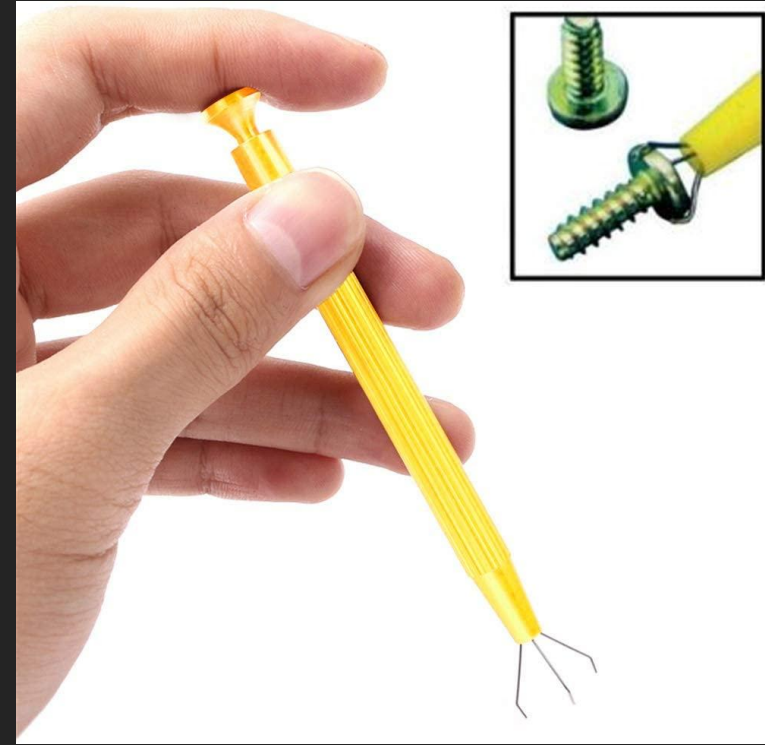
Tweezer

Used to manipulate small parts.

Parts Retriever

Used to retrieve parts from locations that are too small for your hand to fit.

Crimping Tool

Used to attach connectors to wires.

3. **Cleaning Tools-** tools used to clean and organize computer components.

Lint Free Cloth

Used to clean different computer components without scratching or leaving debris

Compressed Air

Used to blow away dust and debris from different computer parts without touching the components

Parts Organizer

Used to hold screws, jumpers, fasteners, and other small parts and prevents them from getting mixed together

Cable Tie

Used to bundle cables neatly inside and outside of a computer

4. **Diagnostic Tools-** used to test and diagnose equipment.

Multi - Tester

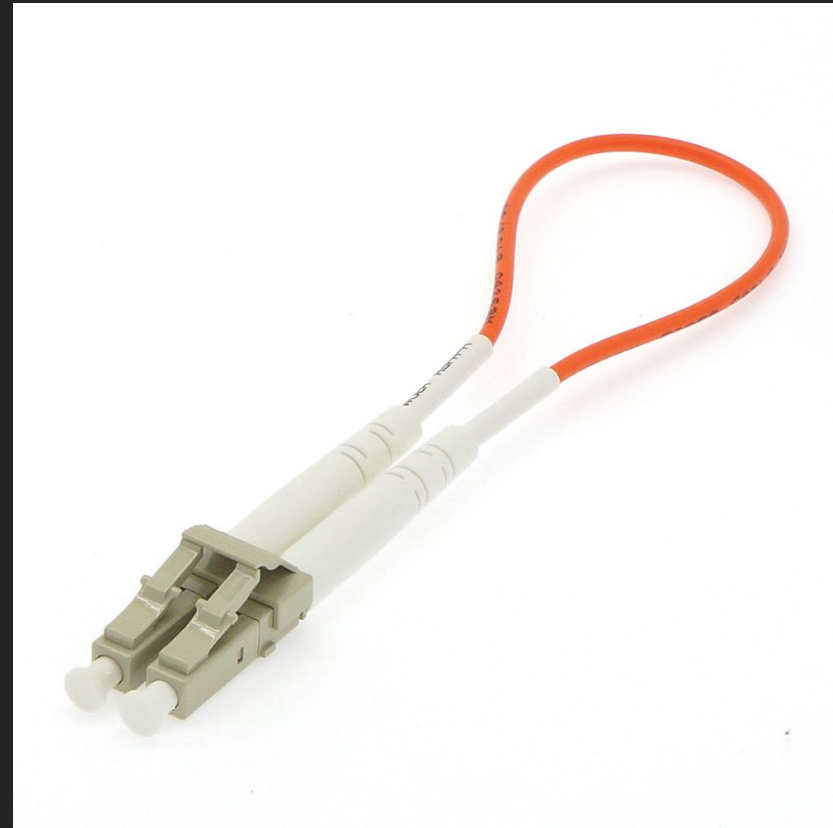Used to test the integrity of circuits and the quality of electricity in computer components

LAN Tester
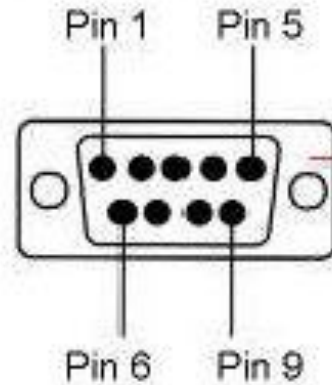
Used to test LAN Cable or Internet

Loopback Adapter

- used to test the functionality of computer ports.

DB9 Loopback Adapter (Female)

DB-9 CONNECTOR

Pin 1   Pin 5

Pin 6   Pin 9

View from **inside** the connector

DCD – Data Carrier Detect:	**Pin 1**
RXD – Receive Data:	**Pin 2**
TXD – Transmit Data:	**Pin 3**
DTR – Data Terminal Ready:	**Pin 4**
GND – Ground Pin:	**Pin 5**
DSR – Data Set Ready:	**Pin 6**
RTS – Ready To Send:	**Pin 7**
CTS – Clear To Send:	**Pin 8**
RI – Ring Indicator:	**Pin 9**
DB9 Shell:	