# ELECTRICIAN HARDWARE TOOLS-1

A **hardware tool** is a hand-held object used for **manipulating, repairing or modifying something**. There are many types, and they are essential in the manufacturing and the construction industries. Let's see examples of hardware tools used by electricians in their job.

**Activity 1.** Match the **type of hardware tool** with the definition.

Cutting tools ● Fastening tools ● Gripping tools ● Hand tools ● Marking tools ● Measuring tools ● Power tools ● Screwdrivers ● Testing tools

- A type of fastening tool; it is used for inserting and removing screws.
- A type of measuring tool. We can diagnose and troubleshoot problems by comparing the measured value to an expected result.
- Hard tools with sharp edges that are used for cutting, shaping, and removing material from objects.
- Simple tools which you use with your hands and effort, without an external energy source.
- Tools for creating mechanical joints; small hardware devices link and hold two or more objects together. These mechanical joints can be permanent or reversible, and they usually last long periods of time.
- Tools for handling and securing an object in position for a limited period of time, while you are working on it.
- Tools used for assigning a number to a physical property of an object, which can be compared with other objects. They take a count of quantitative data.
- Tools used for making visible marks or indications on surfaces or materials.
- Tools with an external energy source (electricity, hydraulic fluid, liquid fuel, or compressed air). They save time and effort on the job, but they are dangerous and must be handled with care and respect.

LIVEWORKSHEETS

**Activity 2.** What type of **screwdriver** is it? Identify the pictures and definitions.

Allen keys or Hex keys ● Flat head screwdriver ● Phillips screwdriver ● Robertson screwdriver ● Torx screwdriver











- It has a cross (X) shape at the tip, and it is used for fastening cruciform screws. It is typically used in the automotive industry.

- It has a square, slightly tapered tip, and it is used for fastening square screws. Popular in Canada, this screwdriver is used in woodworking (furniture, boat building) and in general construction.

- It has a star-shaped tip with 6 rounded lobes. It is typically used in land and air vehicles, computer equipment, and consumer electronics.

- It is bent in an "L" shape with unequal arms. It is used for driving bolts and screws with hexagonal sockets in their heads. It is an excellent option for fastening secure joins in tight spaces.

- It is the oldest and most common type of screwdriver in the world. It has a wedge-shaped flat tip, and it is used for fastening slotted screws (they have a straight, linear notch in their heads).

LIVEWORKSHEETS

**Activity 2.** What **hardware fastening device** is it? Identify the pictures and definitions.

Bolt ● Nail ● Nut ● Rivet ● Screw ● Staple ● Wall plug or Screw anchor ● Washer



- It is a little, round, flat disc with a hole in the middle. Made from different materials (steel, brass, plastic, ceramic, etc.), it distributes the load of a bolt or a nut over a larger area.

- It is a permanent mechanical fastening device; it has a cylindrical shaft with a head on one end and a tail on the other. It is ideal for applications that require a waterproof fixing.

- It is a plastic sleeve or insert used for attaching screws into brittle material (drywall, concrete and masonry, for example).

- It is a spike with one pointed end, helical grooves outside the shaft, and a head with a socket. You use a screwdriver to insert it into a surface; the grooves cut into the material and hold it in place.

- It is a square or hexagonal block with a threaded hole in the middle. Usually made of metal, it prevents a bolt from slipping out.

- It is a thin metal wire forming a U shape with two connecting prongs.

- It is a thin, smooth spike with one pointed end and one flat end. To insert it into a surface, you hit the flat end with a hammer.

- It is typically used for connecting two metal components parts. It has a head and a shaft partially covered with grooves. It works in tandem with a nut (and, sometimes, a washer) to secure objects or materials together.

LIVEWORKSHEETS

**Activity 3.** What tool is it? Identify the pictures and definitions. They are **cutting tools** and **gripping tools**.

Adjustable spanner or Crescent wrench ● Cutting pliers ●Drywall saw or Jab saw ● Hacksaw ●Lineman's pliers ● Needle-nose pliers ● Spanner or Wrench ● Utility knife ● Wire strippers









- It is a hand-held gripping tool used for fixing nuts and bolts of all sizes. It has an open end with one fixed "jaw" and one movable "jaw".

- It is a hand-held gripping tool used for fixing nuts and bolts. This tool comes in various sizes and shapes to suit different applications.

- It is a hand-held gripping tool with two long tapered jaws. It is ideal for gripping small objects and reaching into tight spaces which are difficult to access otherwise.

- It is a hand-held saw for cutting through plastic, steel and other metals. Typically, plumbers and electricians cut plastic pipes and plastic conduits with it.

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- It is a hand-held saw with a thin, pointed blade. It is used for cutting holes in soft wood and drywall (to fit an electric socket or a switch, for example).

- It is a multi-purpose gripping tool with a snub nose. It can be used for clamping, crimping, bending, twisting, cutting, stripping and pulling wires.

- It is a multi-purpose tool that can cut thin materials with precision. With it, you can cut plastic strips, string or twine, open boxes, score wood, etc.

- It is a small, hand-held tool used for removing the insulation from electric wires without damaging them.

- It is a small gripping tool with sharp-edged jaws, which is used for cutting metal objects such as wires, staples and screws.

**Activity 4.** What tool is it? Identify the pictures and definitions. They are **testing tools** and **measuring tools**.

Clamp meter ● Multimeter ● Steel ruler ●Tape measure or Measuring tape ● Torpedo level or Spirit level ● Oscilloscope ● Voltage detector or Voltage tester pen

- It is a hand-held testing device with two mobile jaws. It measures electrical current and voltage by detecting the magnetic field emitted by current flowing in a wire.

- It is a measuring tool used for determining if a surface is horizontal ("level") or vertical ("plumb").

- It is a bench instrument commonly used to display and analyse the waveform of electronic signals. It graphically displays electrical signals and shows how those signals change over time.

- It is a flexible instrument used for measuring lengths and distances. It can be foldable or retractable, and it is made up of materials like cloth, plastic, steel or fiberglass.

- It is a testing device that contains several functions in one unit. We can use it to measure voltage, current, resistance, continuity, etc.

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- It is a testing tool used for checking the continuity of a circuit. If you hold the tip near a suspected circuit, it will tell you if there is current or not.

- It is an instrument used for measuring the linear dimensions of an object accurately. It can also be used as a guide for laying out lines.

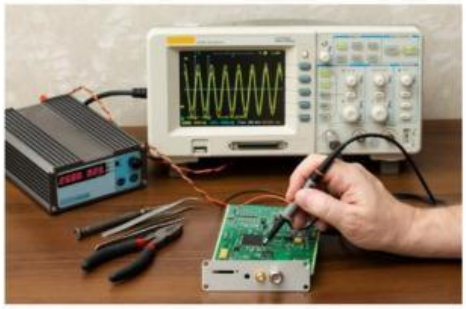














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