FireFighterPrep Comprehensive Guide to Canadian Fire Service Exams

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TOOLS

Hammers

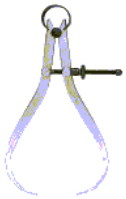
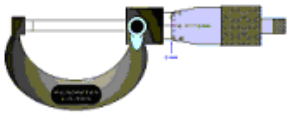
Hammers are instruments used for pounding. For the most part they serve the purpose of driving nails into material, breaking objects apart, or driving other tools into material. Become familiar with the following types of hammers.

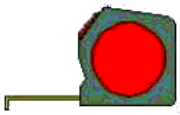
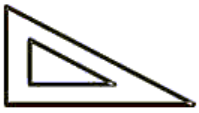
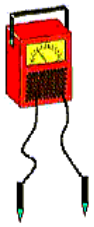
	**Ball Peen Hammer** Hammer used in metal work such as forging or rivet setting.
	**Claw Hammer** General hammer used in carpentry to both drive and extract nails.
	**Rubber Mallet** Drives materials without causing damage to the finish of a work piece or the tools involved.
	**Sledge Hammer** Heavy-duty instrument primarily used for breaking concrete, driving posts, etc. There are various sizes with different weighted heads.

Measuring Devices

Below is an extensive list of measuring devices. They include instruments used to measure an objects length, level, level of currents or angles.

	**Carpenter's Steel Square** Used to check right angles during framing to ensure square shapes. Contains measuring gradations.
	**Combination Square** Can serve as a try square, mitre square and level. Contains measuring gradations.

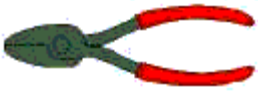
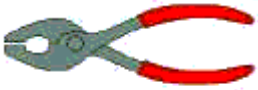
	**Compass** Inscribes circles or arcs and can be used to calibrate equal divisions on a line.
	**Inside Calipers** Transfers internal measurements to a ruler for precise measurements. Can also match two different items to determine a fit.
	**Outside Calipers** Can be used to transfer external measurements to rulers. Also capable of matching two items to compare fit.
	**Micrometre Calipers** Used for precise measurements ranging from 0 to 300 millimetres or 0 to 12 inches.
	**Slide Calipers** Similar to vernier callipers, but are not as accurate. Measuring gradations are larger with a measuring capacity up to 3 inches or 8 cm.
	**Vernier Calipers** Used for precise internal or external measurements. More precise than slide callipers but for larger measurements than micrometer callipers. (150 to 1800 mm or 6 to 72 inches).
	**Level** Measures the accuracy of level surfaces and true horizontal lines.
	**Plumb Bob** Used to determine a vertical line.

	**Steel Ruler** Measurement device with linear gradations, which can also be used as a straightedge.
	**T – Bevel** Marks or verifies angles on material. Often used with a protractor, which serves as a reference point.
	**Tape Measure** Measuring device with flexible metal tape that has measuring gradations.
	**Wind Up Tape Measure** Measuring device with gradations on a metallic tape. Small crank on the side is used to wind up the tape.
	**Tire Gauge** Used to measure the pressure of tires by attaching the end of the spout to ensure proper inflation
	**Triangle** Used to draw angles, and measure the accuracy on materials.
	**Try Square** Used to determine whether or not a work piece is square.
	**Voltmetre / Ammeter / Ohmeter** Unit used to measure the flow of electricity through a conductor (volt), the amount of electrical current flow (amm) or the resistance in a given unit or circuit (ohm).

Pliers

Pliers are most often used for gripping small objects to assist in manipulating them. One of the most common uses is forming shapes in wires.

	**End-Cutting Pliers** Crops metal wire close to a work surface.

	**Needle-Nose Pliers** Cuts and shapes thin-strand wire. Can grip small items in areas lacking space.
	**Side Cutting Pliers** Effective for cutting metal wire.
	**Slip Joint Pliers** Used to grip items with a pivot which allows two different jaw settings.

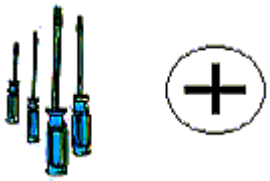
Saws

Saws are generally used for cutting material. It is important to understand that different saws are more suitable for different materials and different types of cuts. Different blades have to be used if you are cutting across the grain of wood (cross cutting) or cutting along the grain of the wood (ripping).

	**Chain Saw** Used in the cutting down of trees and cutting logs to specific lengths.
	**Circular Saw** Uses a variety of blades in order to cut lumber, certain metals, concrete or plywood to various sizes.
	**Compass Saw** Cuts holes in panels. Because this saw does not have a frame, it is not restricted to an edge of a work piece like a coping or hack saw.
	**Coping Saw** Effective for making curved cuts in a variety of materials.
	**Hack Saw** Cuts through metal sheets, piping, plastics, etc.
	**Hand Saw** Cuts through wood boards, sheets, or panels to various sizes. Can crosscut (across the grain) or rip (cut with the grain) or a combination depending on the teeth.

	**Reciprocating Saw** Power saw used much the same way as a handsaw or compass saw. Effective with wood, plastics, or thin metals. Various blades can be used depending on requirements.
	**Saber Saw** Effective for cutting curves in materials depending on blade selection.
	**Table Saw** Used to cut boards of various length. Depending on the blade can be used for crosscutting or ripping.

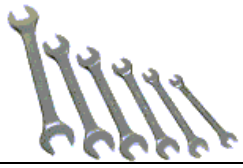
Screwdrivers
Screwdrivers are most often used to drive screws into material in order to fasten objects together. Different screw-heads require different drivers.

	**Allen Key** L-shaped hexagonal key used to tighten or loosen setscrews.
	**Jeweler's Screwdrivers** Used with small screws such as found in eyeglass hinges, wrist watches and electrical equipment. Drives and loosens screws.
	**<u>Phillips Screwdriver</u>** Used to drive Phillips head screws (cross).
	**Robertson Screwdrivers** Used to drive Robertson-head screws. More prominent in Canada than the United States.

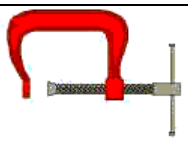
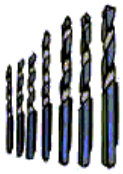
	**Slotted (conventional) Screwdrivers** Used to drive slotted head screws.

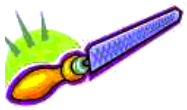
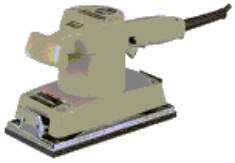
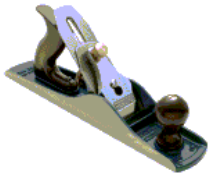
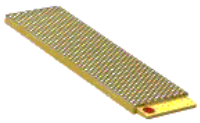
Wrenches

Wrenches are most often defined as tools for turning nuts, bolts or pipes. There are several different types of wrenches, which have different uses, different strengths and different drawbacks.

	**Bolts** Used with nuts to hold two separate parts together.
	**Box Wrench** Used to tighten or loosen nuts and bolts. Allows more torque than an open wrench, but takes longer to use due to constant refitting on the bolt.
	**Channel Locks** Used like traditional pliers, with the ability to adjust jaw length to accommodate larger stock.
	**Crescent Wrench** An adjustable wrench. Tightens and loosens nuts and bolts of various sizes.
	**Open-ended Wrench** Tightens and loosens nuts and bolts. More useful than box wrenches in areas where there are obstructions above nuts.
	**Pipe Wrench** Grips round objects such as pipes and steel rods. The wrench is adjustable to accommodate various sizes.
	**Ratchet** Very common tool for tightening or loosening bolts. Eliminates the need to readjust for another grip as with most wrenches.
	**Strap Wrench** Used specifically to remove or tighten oil filters. Usually found in an automotive repair shop.

Carpentry Tools
The tools listed below are most often used with woodwork but may have applications beyond woodwork.

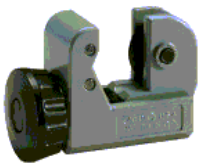
	**Awl** Starts holes in wood to allow nails and screws to follow.
	**Belt Sander** Sands wood, steel or plastic. The sheets run through the machine which are embedded with various abrasives. Back and forth motion is used.
	**Bench Grinder** Used to sharpen tools and remove rough edges. Can act as a buffer to clean and polish metal work if a wire brush is attached.
	**Brace** Manually drills holes through wood or provides additional torque in driving screws.
	**C-Clamp** Clamps wood or metal for various purposes.
	**Centre Punch** Marks and guides the placement of drill points.
	**Drill Bits** Used in power drills or braces for drilling holes. Various bits include the spade bit, auger bit, turn screw bit and ream.
	**Drill Press** Stationary power drill which can be used for drilling holes of various sizes depending on the bit.

	**Electric Router** Cuts grooves and mouldings of various shapes and sizes. Different types include dovetail, rabbit, etc.;
	**Files** Several different types used to file surfaces of most materials. Flat files, triangular files (angles or square corners) and round files (smooth or round openings) are all examples.
	**Finishing Sander** Uses light abrasive paper. Mechanism relies on vibration.
	**Jack Plane** Smoothes a wooden work piece.
	**Parallel Clamps** Used to secure boards or framing while they are being glued. Able to secure an angled object unlike pipe clamps.
	**Power Drill** Used to drive screws into material, or with bits to drill holes of various sizes. Can also have sanding disks, buths or lathes applied. Very flexible and fast tool.
	**Vice** Used to hold or secure a wood or metal work piece while work is being performed on it.
	**Whetstone** Tool used to primarily sharpen tools. A stone comprised of a gritty abrasive.
	**Wood Chisel** Coming in a variety of shapes and sizes, wood chisels are primarily used to trim or groove wood. Often used with some form of hammer.

Electrical Tools
Below is a small list of tools that are commonly used by electricians.

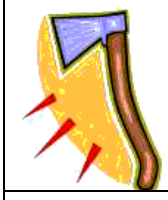
	**Soldering Gun** Used in electrical work to solder wire to form contact terminals.
	**Soldering Iron** Heats metal and solder to form joints.
	**Utility Knife** General-purpose knife, often called an exacto knife.
	**Wire Strippers** Used similar to a pair of pliers to cut and strip insulation from wire. Can also be used to crimp terminals.

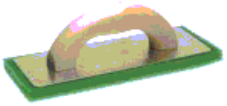
Metal Working Tools
Below is a small list of tools that are commonly used by metal workers.

	**Arc Welder** Uses electrical current to fuse pieces of metal together (rated in amperage).
	**Bolt Cutters** Cuts through steel rods, bolts, and locks. Employs the use of compound levers.
	**Cold Chisel** Flat chisel used to chip or cut cold metal including bolts and chain links.
	**Multi-Purpose Tool** Serves several functions including pliers, screwdrivers, knife and file.
	**Pipe Cutter** Cuts metal pipe by continually circling the pipe and increasing the torque.

	**Propane Torch** Heat source that has the ability to braze and solder pipe work. Heat can also be effective for loosening tight nuts and bolts.
	**Snips** Used to cut through sheet metal.

Miscellaneous Tools
The tools listed below can fall into several categories. You should be familiar with all of their uses.

	**Axe** Cutting tool used to chop trees down or hewing of wood.
	**Pick Axe** Breaks up hard material such as concrete, asphalt, etc. Can be used to pierce through walls in fire situations.
	**Brick Trowel** Used while working with bricks or concrete. Shapes, spreads and smoothes mortar.
	**Broom** Used to sweep up debris.
	**Caulking Gun** Applies sealants to joints such as window frames, doors, roofing vents or floor tiles.
	**Crow Bar / Wrecking Bar** Used to pry things apart, remove nails. Acts as a lever
	**Glass Cutter** Used to cut holes through glass surfaces.

	**Hatchet** Used to trim wood and can also be used as a hammer.
	**Lopping Shears** Gardening tool used for pruning tree branches and shrubs.
	**Plunger** Creates back pressure on obstructions to clear debris blocking drains.
	**Rake** Used to collect debris.
	**Shovel** Various uses including lifting debris or sprinkling earth or other materials.
	**Skimmer Float** While working with either wet plaster or concrete it can smooth the material to create a clean finish.
	**Trowel** Used to dig into earth or in the case of a mason's trowel to smooth and shape mortar when working with bricks or concrete.