MEM18001C

Use hand tools

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Unit Resource Manual

Manufacturing Skills Australia Courses

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Aims of the Competency Unit:

This unit covers using a range of hand tools for a variety of general engineering applications.

Applications may include hand tools used for adjusting, dismantling, assembling and finishing of items or components, and the finishing, cutting, scraping of metallic and non-metallic material to size and shape. This includes simple tapping and threading and routine maintenance of hand tools.

This unit should not be selected if the hand tool is dedicated to a single operation or machine and if only a machine specific/customised tool is used.

When using hand held power tools or power tools used for hand held operations, refer to Unit MEM18002B (Use power tools/hand held operations)

Unit Hours:

18 Hours

Prerequisites:

None.

Elements and Performance Criteria

1.	Use hand tools	1.1 Hand tools are selected appropriate to the task requirements.
		1.2 Hand tools are used to produce desired outcomes to job specifications which may include finish, tension, size or shape.
		1.3 All safety requirements are adhered to before, during and after use.
		1.4 Unsafe or faulty tools are identified and marked for repair according to designated procedures before, during and after use.
		1.5 Routine maintenance of tools, including hand sharpening is undertaken according to standard operational procedures, principles and techniques.
		1.6 Hand tools are stored safely in appropriate location according to standard operational procedures and manufacturers' recommendations.

Required Skills and Knowledge

Required skills:

Look for evidence that confirms skills in:

- reading and following information on standard operating procedures
- following verbal instructions
- selecting hand tools appropriate to the task
- using hand tools safely
- identifying hand tool defects and marking for repair
- maintaining/sharpening hand tools using appropriate techniques
- storing hand tools in accordance with manufacturers'/standard operating procedures.

Required knowledge:

Look for evidence that confirms knowledge of:

- applications of different hand tools in a general engineering context
- common faults and/or defects in hand tools
- procedures for marking unsafe or faulty tools for repair
- routine maintenance requirements for a range of hand tools
- storage location and procedures for a range of hand tools
- hazards and control measures associated with using hand tools
- use and application of personal protective equipment
- safe work practices and procedures

Lesson Program:

Unit hour unit and is divided into the following program.

Topic	Skill Practice Exercise
Topic 1 – Chisels:	MEM18001-RQ-0101 to MEM18001-SP-0102
Topic 2 – Files:	MEM18001-RQ-0201 to MEM18001-SP-0202
Topic 3 – Gouges:	MEM18001-RQ-0301 to MEM18001-SP-0302
Topic 4 – Hacksaws:	MEM18001-RQ-0401 to MEM18001-SP-0404
Topic 5 – Hammers & Mallets:	MEM18001-RQ-0501 to MEM18001-SP-050
Topic 6 – Punches:	MEM18001-RQ-0601 to MEM18001-SP-060
Topic 7 – Hand Saws:	MEM18001-RQ-0701 to MEM18001-SP-070
Topic 9 – Screwdrivers:	MEM18001-RQ-0801 to MEM18001-SP-080
Topic 10 – Spanners & Wrenches:	MEM18001-RQ-0901 to MEM18001-SP-090
Topic 11 – Hand Planes:	MEM18001-RQ-1001 to MEM18001-SP-100
Practice Competency Test	MEM18001–PT-01

Contents:

Topic 1 – Chisels:

Required Skills:

- Identify the various chisels used in industry.
- Select a chisel to suit a specific task.
- Care and sharped a chisel.

Required Knowledge:

- The types of files used in industry.
- Safe working procedures and minimum Personal Protection Equipment.
- Care and storage of chisels.

1.1 Introduction

A chisel is a metal tool which has a sharp bevelled edge designed for cutting, gouging, and shaping. Chisels are used in woodworking, stone masonry, and metalworking, and are manufactured in a wide range of styles, designs and quality for specific tasks. Hardware stores and specialty tool shops carry a wide array of chisels, including starter sets for those who are just learning the craft to crafted trades people. Timber workers consider chisels as some their most important tools, and take excellent care of them as a result.

The earliest form of the chisel began to appear around 8,000 BCE, and it was made out of flint, rather than any metal. Archaeological sites have uncovered numerous examples of early chisels (Figure 1.1), along with evidence of their use. Much like modern chisels (Figure 1.2), ancient chisels could be used independently or in combination with a hammer or mallet which drives the chisel into the material being worked.

Figure 1.1

Figure 1.2

Steel is one of the most common construction materials for chisels, since it is durable, corrosion resistant, and very strong. Other metals may be employed for specific types of chisels. Typically, the metal is cast into a bar with a sharp bevelled edge on one side. The bar is attached to a handle made from metal, timber, or plastic, and in some cases the handle is cast as part of the chisel to make the tool stronger.

A wide range of sizes and styles of chisels are available, from very small chisels designed for the fine details of woodworking to heavy chisels designed for working cold metals. Learning to select the right chisel for a task can take years of experience. Stone masons in particular may struggle in their early years of training with chisels, as the wrong chisel can cause a piece of stone to crack or break, making it unusable.

In woodworking, chisels are used extensively for everything from carving fine details to roughing out slots in pieces of wood which will be fit together. Because chisels are such

critical tools, some trades people build specialized cabinets which are designed to keep the chisels organized and safe; chisels can also be wrapped in insulating material and stored in toolboxes. Woodworkers like stone masons are also familiar with the consequences of using the wrong chisel, as wood can split or be heavily gouged by a poorly chosen chisel.

1.2 Types of Chisels:

Chisels have a wide variety of uses. Many types of chisel have been devised, each especially suited to its intended use. Different types of chisel may be constructed quite differently, in terms of blade width or length, as well as shape and hardness of blade; they may have a wooden or plastic handle attached or may be made entirely of one piece of metal. Chisels can be divided into stone masonry, metal working and woodworking types.

1.2.3 Masonry Chisels:

Masonry chisels are used to carve or cut stone, bricks or concrete slabs and are typically heavy, with a relatively dull head that wedges and breaks, rather than cuts. The chisels can be used as a demolition tool and may be mounted on a hammer drill or jack hammer, or hammered manually with a heavy hammer. Different types of masonry chisels include:

1.2.3.1 Bolsters:

A bolster has a wide, flat blade that is tapped along the cut line to produce a groove, then hit hard in the centre to crack the stone. Bolsters are used to cut instead of carving.

1.2.3.2 Moil (Point) Chisels:

Moil-point chisel bits are sharp points used for very thin line work, intricate detailing and chipping away small pieces of stone or tile. Flat bits come in thin and wide forms, depending on what the user needs, and are mostly used for clearing away parts of a material to make way for later detailing.

1.2.3.3 Flat Chisels:

Flat chisels are available in many different sizes ranging from thin to wide, depending on how much material is to be removed. Both sizes are good for removing more material than the moil point, but can also be useful in basic detailing work. Thin bits can make large lines that add to a design, while wide bits are mostly used to clear a surface.

1.2.3.4 Asphalt Cutters:

Asphalt cutters are designed and manufactured to cut through asphalt to expose under laying concrete and can also be used for stone removal.

1.2.3.5 Carbide Bushing Tools:

Carbide Bush tools are used to even out stone and masonry surfaces by removing bumps and tacking down the surface.

1.2.3.6 Clay Spade:

Clay spade chisels are used mainly in clay sculpting where any fine lines created by the larger chisels and tools can be smoothed to an even surface.

1.2.2 Metalworking Chisels:

Chisels used in metal work can be divided into two main categories: hot chisels and cold chisels:

1.2.2.1 Cold Chisel:

A cold chisel is a tool that can cut through cold metal; similar blacksmith tools are typically used only after the metal has been heated; sometimes they are mistakenly called "coal chisels". Cold chisels are strong and heavy because they are usually made of tempered steel, which is hard enough to bite through most other metals.

Some cold chisels are made of copper in order to ensure that they will not produce sparks. In most cases, however, the chisel is forged from steel and then flame-tempered until its head takes on a hard, browned appearance to give the chisel roughly the same cutting ability as a metal saw or cutting machine.

In most cases, a cold chisel will not be the right choice if a refined surface is desired; they are intended to perform many of the same functions as cutting machines but are typically less accurate and harder to use. The tool may come in handy if a cutting machine is either unavailable or out of service, or in special circumstances where the machine can't do the job suitably.

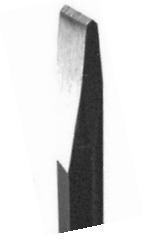
Unlike a woodworking chisel, a cold chisel tends to be darker in colour and may not have a handle. Technically there are four main types of cold chisel: those that are equipped with a diamond-shaped point for making sharp cuts or punching holes; those that have a cross-cut head for making slots or grooves; those that have a rounded blade for making indentations; and those that have a flat, wide cutting head. The most common type of this chisel is the flat chisel.

Cold Chisel Set

Diamond Point

Cross-Cut Head

Round Head



Flat Head

The flat cold chisel can be used as a substitute for a masonry chisel where necessary, due to its heavy shaft and sharp blade and is able to split bricks and stone almost as easily as metal. Cold chisels don't make very precise cuts, so they are best suited to jobs where a rough edge is acceptable; for this reason, they are often used to split larger metal sheets into pieces or to chip away excess. Weak or pre-formed metal objects, like pipes, are not usually good materials for cold chisel cutting.

Cold chisels are available in a wide range of sizes. Some are small and designed to be used for delicate work, while others are extremely large, heavy chisels that have to be struck with a large sledgehammer or mallet. The operator should hold the chisel perpendicular to the metal surface to be split.

1.2.2.2 Hot Chisels:

A hot chisel is used to cut metal that has been heated in a forge to soften the metal.

Hot cutting is done with a chisel or tool configured much like the common cold cut chisel, except the blade is much thinner and sharper. Hot chisels are meant to be held in one hand and struck with a hammer. Handled hot cut chisel are used by a second person included in the forging operation to either hold the chisel, or to strike it with a hammer while the blacksmith holds the hot steel to be cut in tongs on the anvil. The tool hot cut hardy has a stem that fits into the hardy hole of the anvil with the cutting edge oriented up.to hold the tool upright and secure. The hot workpiece to be cut is then placed over the chisel and struck with a hammer. The hammer drives the workpiece into the chisel, which allows it to be snapped off with a pair of tongs; this tool is also often used in combination with a "top fuller" type of hotcut, when the piece being cut is particularly large.

The Hardy Fuller is very similar to a Hardy Chisel except that it has a very blunt and rounded cutting edge. It is not designed to cut at all, but to dent the hot metal for such purposes as forming a shoulder, drawing out, or other tasks where an indentation is required in the workpiece. Fullers come in various general shapes and with different radius edges. Often, if you are lucky, a fuller will come with a matching top fuller which is sort of a handled chisel with a blunt cutting edge that matches the Hardy fuller. The fuller may not be as important as the Hardy Chisel, but is still important

Hot Chisel

Handled Hot Cut

Hot Cut Hardy

Hardy Fuller

1.2.3 Woodworking Chisels:

A woodworking chisel is a tool used to carve and shape wood. The woodworking chisel has a high carbon steel blade which can be honed to a razor-sharp edge and is attached to a handle made of timber or a composite material. The chisels are used in both lathe turning as well as free hand carving; the woodworking chisel is capable of creating elaborately detailed work in the hands of a skilled tradesperson. Unlike a metal cutting cold chisel which is hammered through a bolt, the woodworking chisel is more like a knife in that it slices and carves its way through the timber.

While available individually, the typical woodworking chisel can be purchased in a set comprising of varying widths and profiles. Woodworking chisel sets include a variety of tools to roughly begin and finely finish most woodworking projects. Tradespersons will usually purchase their woodworking chisel sets as individual chisels, spending as much on a single chisel as most do-it-yourself woodworkers will spend on an entire set of chisels.

Figure 1.3

Woodworking chisels that are correctly sharpened can slice through paper and shave hair; this high level of sharpening allows the tool to slice through the grain of the timber without creating splinters or rough edges. As the tradesperson uses the chisel to slice and gouge a shape into a timber block, the varying sizes and shapes of the chisels used create the delicate lines of a sculpture. Each chisel creates its own distinctive line.

Not all woodworking chisel sets are used to create works of art. Some chisels are used by carpenters to help with tasks such as providing clearance on a door for hinges. The chisel used by a carpenter is more utilitarian than the version used by woodworking artists. While still very sharp, this construction tool is often helped through the timber by a few blows from a timber mallet.

Although the chisel's blade is designed to withstand substantial raps with a mallet, its handle must be durable enough to prevent damage. A rugged, impact-resistant handle constructed of hardwood with a metal striking area is a suitable handle for a firmer chisel. Steel ferrules around the top of the handles improve impact strength and prevent the timber from splitting; composite material handles may not be reinforced and can sustain greater impact loading.

The main types of woodworking chisels are the bevel, firmer, mortise and paring.

1.2.3.1 Bevel Chisel:

A bevel chisel is a handheld woodworking tool used to cut away material from timber stock. The cutting action is achieved by pushing the chisel across the timber surface by hand or by tapping the chisel handle with a suitable mallet. A bevel chisel typically consists of a long, hardened steel blade with heavily bevelled sides which allow the chisel to be used in tight spaces such as dovetail undercuts and mortise cut-outs. The blade features a tapered tang at its non-cutting end which is secured in a wooden or plastic handle. Bevel chisels are available in a range of blade sizes and cutting edge profiles to suit a selection of cutting requirements.

Woodworking chisels are bladed cutting tools used to remove material from timber in the hobby, furniture and cabinet making, general carpentry, and construction industries. Most chisels feature a handle made of timber or high impact plastic into which a tapered tang on the non-cutting end of the blade is inserted. The blade itself is typically long and rectangular with a bevelled cutting edge across the narrow side opposite the tang. In the case of the bevel chisel, the long sides of the blade also feature strong bevel profiles. Bevel chisels are either used to cut by pushing the chisel against the workpiece by hand or tapping the handle with a suitable mallet.

Figure 1.4

Bevel chisels are typically used to cut out mortises or square cornered holes for door locks, hinges, or tenon joint pegs. The chisels are also suited for cutting out the profiles for dovetail joints; when cutting them, the full value and purpose of the shape of the bevel chisel blade becomes apparent. Dovetail joints consist of a series of trapezoid shaped "fingers" cut along the edges of two pieces of timber. When they are mated with

the protrusions on one slotting into the cut-outs on the other, they make for an exceptionally strong and attractive corner joint. Bevel chisels are perfectly shaped for cutting out the timber in the undercut part of the profile.

Bevel chisels are also well suited to cutting clean, flat mortises in any tight space with the bevel giving a good clearance at the blade edge. The bevel chisel is available in a wide range of sizes and grades ranging from 3 mm to 50 mm wide in a variety of grades. The chisels are also available in sets featuring various blade widths and cutting profiles.

1.2.3.2 Firmer Chisel:

A firmer chisel has a thick, strong blade that allows removal of large pieces of wood in a single strike. In fact, this chisel's 100 mm long blade is strong enough to form deep, large joints when the end is hit with a mallet. Firmer chisels have a bevelled edge, and are a good choice for general woodworking projects. One variation of a firmer chisel is called a bevelled edge chisel, or butt chisel, with bevels on two sides of the cutting surface for more precise trimming.

The firmer chisel is among the oldest types of chisels used and may have evolved from the use of sharpened rocks in the Stone Age for cutting away unwanted material and trimming hides. Over time, timber handles were added to provide comfort during use, and to allow the exertion of force by hitting the handle with the palm of the hand or a mallet. Different chisels are designed for specialized jobs, but the firmer chisel remains a good addition to a basic woodworking tool kit, especially for cutting grooves with sharp angles.

Figure 1.5

1.2.3.3 Mortise Chisel:

A mortise chisel is used for cutting mortise joints which are the strong joints commonly used to build furniture. Mortise chisels have long, stout, square blades that are capable of making both deep and shallow cuts. The mortising chisel usually has a wooden handle, the popular choices being ash or beech, and this wooden handle is reinforced by a metal base ring. Being reinforced with metal in this manner, the reinforced wooden handle can withstand strong blows from a mallet without cracking.

There are different types of mortise chisels available in different sizes as well. A carpenter's mortise chisel set would typically contain a range of tools that could be used for varying purposes. For instance, the heavy mortise chisel that is commonly known as a "pig sticker" would be used to make the deep cuts. Using a heavy mortise chisel first can really save both time and effort. A mortise chisel bit fitted in a drill can also be used to make the deep cut faster. Later a lighter weight mortising chisel may be used to fine tune the cut by hand.

Figure 1.6

The most commonly used sizes of mortise chisels are the 6 mm and 10 mm chisels.

1.2.3.4 Paring Chisel:

Paring chisels are lightweight chisels that are never hit with a mallet. The chisels are primarily used for removing thin shavings of wood when one is fitting joints. The thin blades of paring chisels make them almost flexible. A paring chisel is long in order to give maximum control to the user. In order for a person to use the paring chisel effectively, one hand is used to push the blades from the handle while the other hand guides the cut that the chisel makes.

Paring chisels come in two main types: the conventional straight paring chisel and the cranked paring chisel. Cranked chisels, which are sometimes also known as dogleg chisels, are used primarily to pare the wood by keeping the chisel flat on the surface.

With conventional chisels, the handle will get in the way if the cut being made is away from an edge. One of the advantages with cranked paring chisels is that the crank in the handle gives the user the maximum clearance needed.

Figure 1.7
Paring Chisel

Figure 1.8
Fishtail Chisel

Figure 1.9
Cranked Chisel

A fishtail paring chisel is another type of chisel that is used less often than the conventional or the cranked type. The shaft of the fishtail chisel is narrower than the blade. This allows for paring in the most awkward of places.

Other applications of paring chisels include cleaning up carcasses after assembly or whenever large, flat surfaces require paring. Paring chisels are an essential tool for cabinetmakers, carpenters and woodworkers alike. Besides paring and shaving wood, a paring chisel can also be used as a pry bar. By simply inserting one in between two boards, a paring chisel can reach tight-to-fit places into which a typical flat bar might have trouble getting.

1.3 Using Chisels:

The chisel is a simple and safe tool to use provided set procedures are followed.

1.3.1 Metal Chisels:

All material to be cut must be secured in a vice or clamped to a workbench or some stable and solid structure at approximately waist height.

The chisel must be held firmly enough to guide it while working, but loosely enough to ease the shock of the hammer blows transferred to the hand through the chisel.

The chisel is held at an angle that will bring the lower bevel to the surface of the work. The hammer is then held near the end of the shaft and swung with sufficient force to work the material. The chisel must be lubricated when chipping steel every few blows by wiping the cutting edge over an oil-soaked rag. The chisel does not need to be lubricated when working on cast iron.

To cut rods or small bars to a rough size, the bar is held in a vice with a series of short nicks made around the surface of the bar. The bar can then be bent until it breaks.

To cut a hole, use a narrow chisel so the shape of the cut will conform closely to the line, reducing the amount of filing necessary to achieve a desired finish.

When holding the chisel, grip the chisel with the thumb pointing down the shaft. The meaty part of the hand will be exposed to any misdirected hammer blows and while still hurting, will not damage bones and knuckles.

1.3.2 Timber Chisels:

The secret to using a woodworking chisel is to always have a sharp blade.

The area to be worked must be marked-out in pencil and then a groove cut using a marking knife or the chisel. The unwanted material is then removed by either hand control or force.

To prevent accidents and injury from occurring, the material being chiselled should be held firmly in a vice or cramped to a bench top. Additionally, both hands must be located behind the cutting edge; never attempt to place one hand in front of the chisel while chiselling.

1.3.2.1 Two-Handed Control:

For careful paring, a 2-handed grip is used. One hand guides the cutting edge while the other hand provides driving power. For extremely precise work, the guide hand is braced up against the material and used as a fulcrum to pivot on throughout the motion. Total control and accuracy can be gained by the method.

Figure 1.10

1.3.2.2 Force:

When a greater cutting force is required, one hand holds the handle and a mallet is used to drive the chisel. Care must be taken when striking older, timber handled chisels, as a timber handle is much more likely to split than a plastic one unless it is reinforced with a steel ferrule. Avoid using a metal hammer for striking, a hard plastic mallet will do less damage to the chisels, and cause less damage to fingers and knuckles when the hammer misses the handle. The chisels are never struck with massive force but a succession of strategic soft strikes.

Figure 1.11

1.3.2.3 With the Grain:

Cutting against the grain will cause the chisel edge to dig in and split the timber and is due to the combination of downward sloping grain and the downward sloping bevelled edge of the chisel. To make an ideal cut, flip the workpiece around to orient the grain properly. Quite simply, always cut with the grain.

Figure 1.12

1.4 Maintenance of Chisels:

Any chisel will not do the job they are designed for unless it is kept in good condition. If a chisel is not sharpened regularly, it produces ragged edges and more force must be applied to make cuts. Chisels should be stored so the cutting edge does not come in contact with other tools to avoid chipping. If a chisel is not used frequently, a light coat of oil will prevent rust.

1.4.1 Metal Chisels:

Figure 1.13 – Burred End

- A dull cutting edge may be sharpened using a common file.
- Always wear safety goggles when sharpening a cutting edge and whenever using a striking tool.
- Rigidly support the tool being sharpened. Secure in a bench vise if possible.
- Never use grinding to sharpen as this causes excessive heat and may result in a loss of strength, durability and temper.
- Instead, use a file or stone of medium or fine grit and file away from the cutting edge. This directs heat away from the edge.
- The original contour of the cutting edge or point should be restored. Flat cold chisels should be restored to a bevel angle of 70°.
- Discard any Cold Chisel if it is bent or shows dents, cracks, chips, mushrooming, or excessive wear.

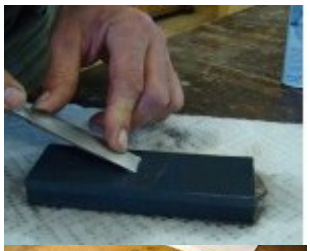
1.4.2 Timber Chisels:

Woodwork chisels need to be maintained in good condition to keep them performing well. It is necessary to keep an eye out for any signs of gathering rust while the blades will also need to be regularly resharpened. There may also be an issue of the timber handles splitting from repeated mallet (or hammer) blows.

A sharp chisel will accurately remove waste timber leaving clean surfaces and edges; a dull or blunt chisel rips and tears the timber leaving splintered edges and uneven surfaces. Extra effort is also required to work a blunt chisel. The following points should be followed in sharpening a woodworking chisel:

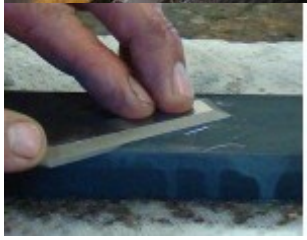
- Use a lubricated whetstone and place the chisel on the stone with the handle parallel to the bench. Lift the handle until the bevel of the cutting tip can be felt flat on the stone; a puddle of oil will be pushed out from under the chisel when the blade is in the correct position.

- Holding the chisel at an angle of 25° to 35°, slide the index finger down to near the whetstone. Maintaining consistent contact between the finger and the stone will help to keep the angle correct during the sharpening process.



- Work the chisel in a figure "8" motion, covering the entire length and width of the whetstone maintaining the correct angle. After a few strokes, inspect the blade to check for the correct angle. Moving the blade in a straight path will wear grooves in the surface.

- During the sharpening process, a small burr forms on the flat side of the chisel. Turn the chisel over and place it flat on the whetstone and then slide the chisel up and down the stone 4 or 5 times to remove the burr. Inspect to ensure the burr is removed.
- The chisel is now ready for use.



1.5 Safety:

Even though a chisel is not a power tool, that doesn't mean it cannot be dangerous. The cutting edge of the chisel should not be pointed toward the body, and safety goggles should be worn when using them. Hands should be kept behind the cutting edge, using a clamp to hold the work surface firmly in place.

Keep all chisels sharpened and in good working order. Discard any chisel with a cracked or chipped face.

Plastic guards offer protection against mishits. All steel chisels (not wood chisels having wooden or plastic handles) are subject to chipping that can cause bodily injury much the same as steel hammer faces.

Never place a chisel of any type in pockets and never use a chisel for prying and driving screws.

1.5.1 Metal Chisel Safety:

Cold chisels should be struck only with a hand drilling, ball peen or similar heavy hammer with a face diameter approximately 10 mm larger than the struck tool head.

A cold chisel should be used only for cutting and chipping cold metal (unhardened steel, cast and wrought iron, aluminium, brass and copper), never masonry.

Never use a cold chisel for cutting concrete or stone.

1.5.2 Wood Chisel Safety:

Both hands must be kept behind the cutting edge at all times and safety glasses/goggles when using chisels.

The cutting edge of chisels must be sheaved or covered when not in use; this protects the cutting edge and prevents lacerations to people's fingers.

Skill Practice Exercises:

Skill Practice Exercise MEM18001-RQ-0101.

Answer the following questions:

1. What chisel is used to cut stone, bricks and concrete slabs?

2. What type is chisel is shown in image RQ1?

   _____

3. Name two types of chisel.

   _____

   _____

4. Identify the carbide brushing chisel from the following images by circling the correct letter.

A.

B.

C.

D.

5. Name three types of woodworking chisel.

   _____

   _____

6. What is the name of the chisel shown in image RQ2?

   _____

7. What type of chisel is best suited to cut a dovetail joint in timber?

   _____

   _____

8. Which motion should be used when sharpening a chisel on a stone?

   _____

9. Describe the difference between a "Cold Chisel" and a "Hot Chisel".

   _____

_____

10. Give a short description of a chisel.

_____

_____

11. When should a Cold Chisel be discarded?

_____

_____

12. What is the name of the chisel shown in image RQ2?

_____

RQ1

RQ2

RQ3

Skill Practice Exercise MEM18001-SP-0102.

Metalwork:

Cut 2 pieces of approximately the same size (75 x 5PL x 150) from a given piece of 150 x 5PL x 150 mild steel plate.

Woodwork:

Given a length of 50 x 20 x 150 Pacific Maple (or similar), mark out and cut the shape shown below using woodworking chisels.