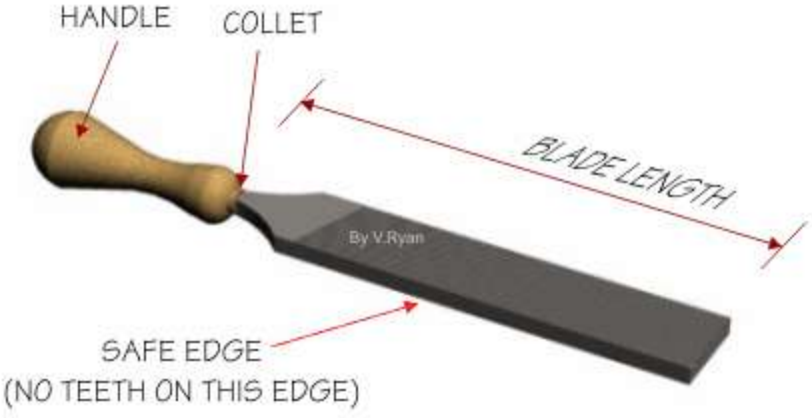
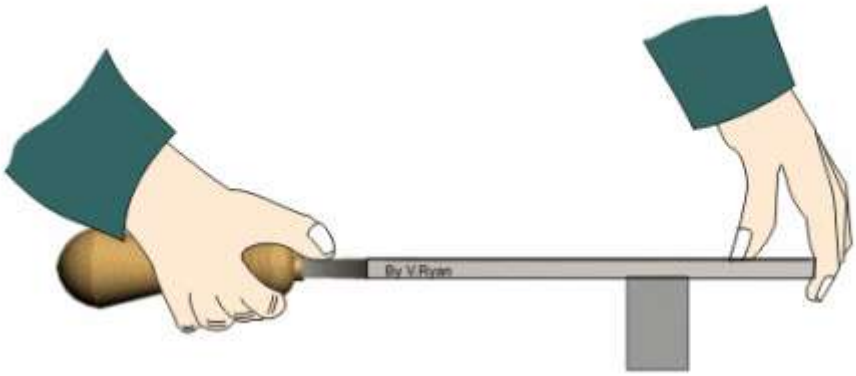
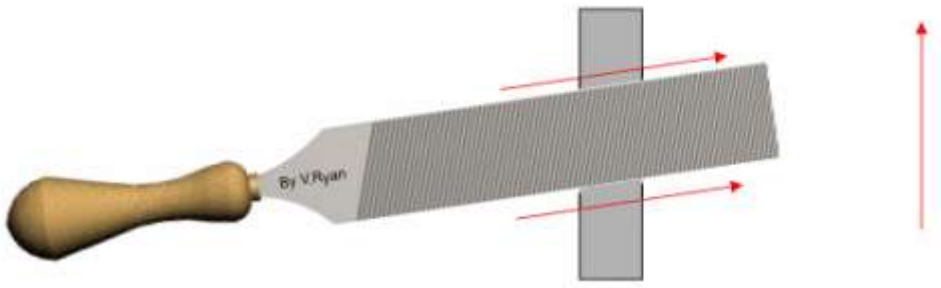
Filing Hand Out Phase 1 Mechanical Carousel Fitting

Hand files are used in the workshop to smooth rough edges. They can be used to smooth a range of materials including metals such as brass and steel to wood based materials such as MDF. They are made from high carbon steel and they are heat treated so that they are tougher than the steel or other materials that they are to be applied to.



Hand files are normally held in both hands. The file is held flat against the surface it is to cut / smooth. The file is then pushed forward and it cuts on the forward stroke. It is then lifted away from the metal and returned to the starting point for the next push forward. This is called ‘through filing’





Through filing is normally the first stage in smoothing a piece of metal or plastic.

If the surface produced by through filing is not good enough - the next stage is ‘draw filing’. The diagram below shows how the file is held during this process. The file is held in both hands by the blade and pushed forwards and backwards along the material. This will further smooth the material.

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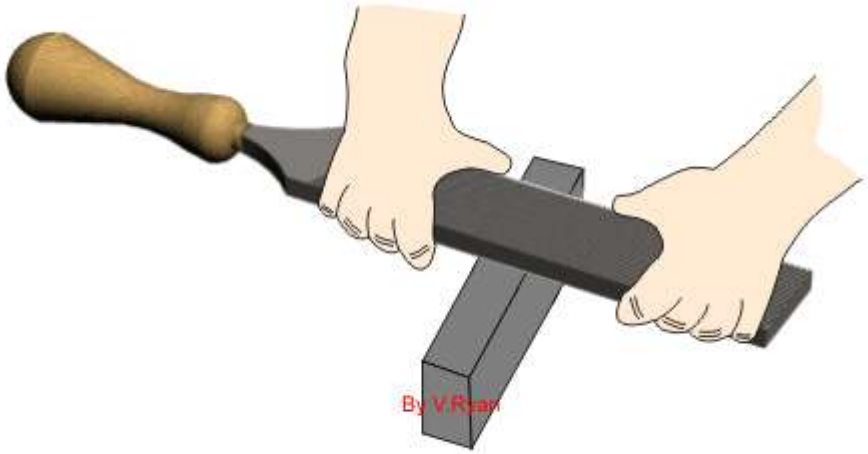

The final stage of filing / smoothing a piece of metal / plastic is to use either emery cloth or wet and dry paper. Emery cloth is used for metals whilst wet and dry paper is used for plastics. The cloth / paper is held onto the blade of the file as shown i the diagram below.

When using emery cloth on steel a small amount of oil can be added which helps smooth the material even further.

A polishing / buffing machine can be used to 'polish' the surface of the material (plastic and soft metals only).

The safe edge of a file does not have teeth. This is extremely useful when filing in corners as shown in the diagram below. The safe edge is placed into the corner and because it is smooth it does not damage the surface of the metal.

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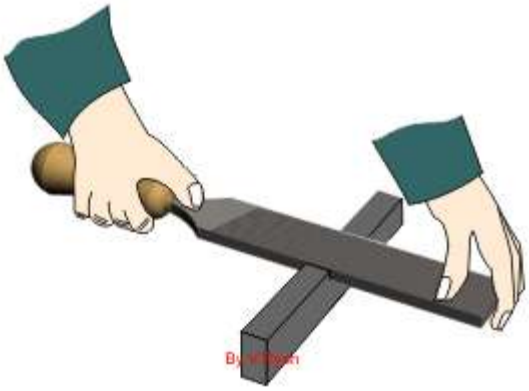

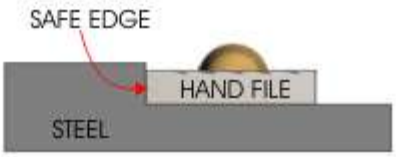

There are many different shapes / sections of files, some are shown below. They are used for a variety of types of work. Files are classified according to their length, section / shape and cut (tooth shape).

HAND FILE: Used for general filing of metals such as steel. They are rectangular in section and are the most common type of file used in workshops.

HALF ROUND FILE: Used for filing curved surfaces. A normal hand file with its flat cutting edges is unsuitable for filing curved surfaces. However, the half round file has a curved surface which is especially useful for filing internal curves.

THREE SQUARE FILE: Is triangular in section and very useful when filing 'tight' corners / angles. The sharp edges allow the file to fit into corners when filing.

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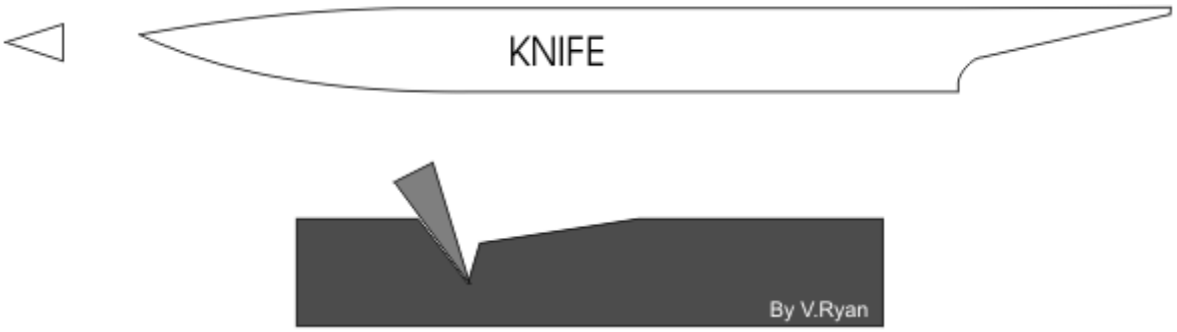
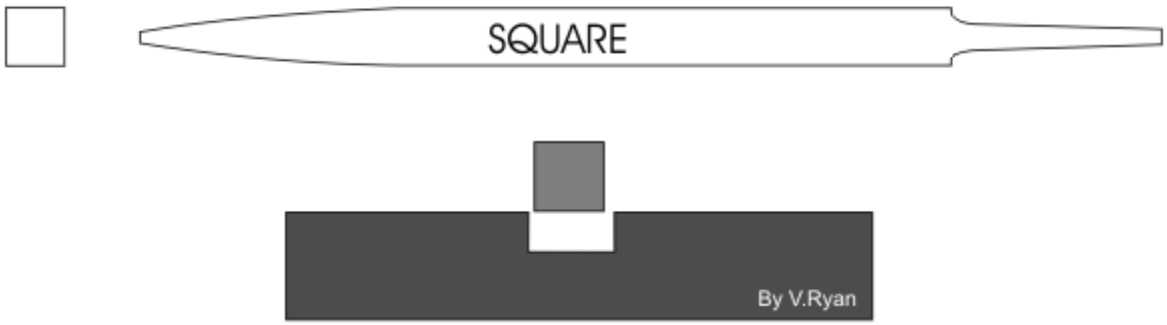
KNIFE FILE: Knife files are very useful when filing where there is little space. Knife files are very thin and can fit into small gaps.



SQUARE FILE: The square file is quite thin and fits into corners well. They can be used to file slots in metal or for filing where there is little space.



Files are often graded according to the roughness / smoothness of cut. The file that has the least harsh teeth is graded as ‘very smooth’. The most abrasive of files is graded as ‘rough’. Some of the grades of cut are shown below.

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GRADES OF CUT - FILES