



The Culinary Institute of America's
Food & Beverage Institute

Foodservice Learning Solutions Toolkit

“Knife Knowledge”

Using the right tool for the job is one of the hallmarks of a professional. Equally important is the ability to handle and care for all tools.

Assembling a personal collection of knives is one of the first steps in becoming a professional. Just as an artist gathers the tools necessary for painting, sculpting, or drawing, you will need to begin a lifetime of selecting the knives that fit your hand the best. They will become as important to you as your own fingers – quite literally an extension of your own hands. As you work with your knives, you will develop a rhythm, learn to coordinate hand motions with cutting tasks, and develop a sense of confidence.

In the “**Knife Knowledge**” toolkit, we have designed each segment to help you and your staff or students understand the importance of knives to a professional chef.

- **Understanding the Rules for Knife Care, Use, & Storage:** The importance of knives to a professional chef cannot be overstated. High-quality, well-made and maintained knives are fundamental kitchen tools that form the foundation of a professional’s work.
- **Identifying the Different Parts of a Knife:** Knowing how each of the different parts of knives are manufactured and shaped will help you to select any knife with care.
- **Sharpening and Honing Tools and Their Uses:** No knife kit can be considered complete without sharpening and honing tools; the key to the proper and efficient use of any knife is maintaining its sharpness.

UNDERSTANDING THE RULES FOR KNIFE CARE, USE, & STORAGE

Make Sure Your Operation is a Cut Above...

You can always distinguish professional cooks and chefs by the care and attention they lavish on their tools. They keep their knife edges in top shape, honing them frequently as they work, sharpening them on stones, taking them to a knife smith when the edges need to be rebuilt, cradling them in sheaths before stowing them in a kit or drawer. No professional would dream of dropping a knife into a pot sink or putting a knife away dirty.

Professional pride certainly plays a part in this behavior. More to the point, however, is the professional's sure knowledge that a knife is only valuable as long as it is properly maintained. A well-cared-for-knife makes cutting tasks easier to perform.

If you have selected your knives carefully, and purchased the best-quality knife for the job at hand, you can keep those knives in peak condition by learning and observing the basic rules of knife safety and etiquette.

KEEPING KNIVES CLEAN & SANITIZED

Clean knives in hot soapy water and dry thoroughly between cutting tasks as well as after use and before storage. Sanitize them by wiping down the blade and handles with a sanitizing solution as necessary so the tool does not become a site for food cross-contamination. Keeping knives clean helps to extend their lives.

☒ Do not clean knives in a dishwasher

The wooden handles are likely to warp and split and edges could be damaged by jostling or temperature extremes.

☒ Never drop a knife in a pot sink

The knife could become dented or nicked by the pots, and someone who reaches into the sink could be seriously injured by the blade.

STORING KNIVES

There are a number of safe, practical ways to store knives: in knife kits or cases for one's personal collection, custom-built drawer systems, and wall- or tabletop-mounted racks. Proper storage prevents damage to the blade and harm to unwary individuals.

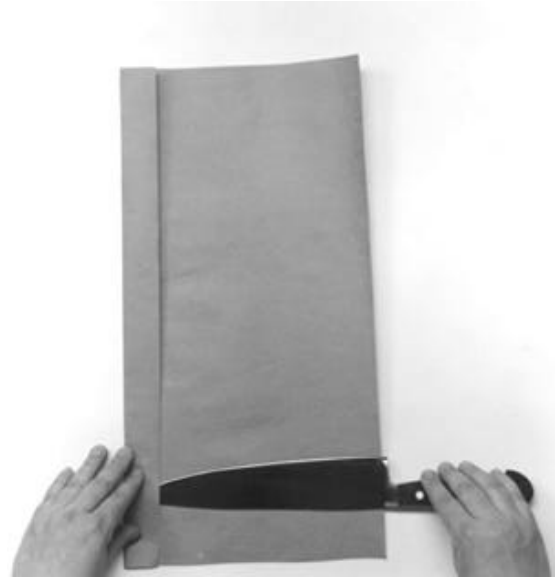
When knives are stored loosely, as in many knife kits and often in drawers, plastic knife guards or handmade sheaths can add an extra level of protection.

MAKING PAPER SHEATHS

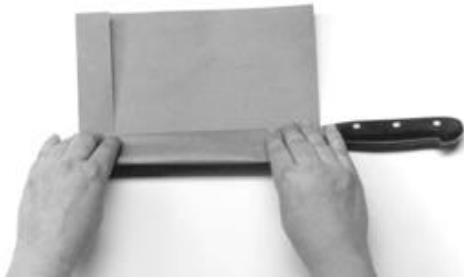
Rigid or soft sheaths can be purchased to fit a variety of knives. It is also possible to make sturdy sheaths inexpensively from kraft paper, as shown here.



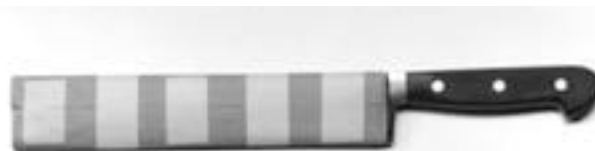
1. Cut a piece of paper that is 1 inch longer than your blade and 18 inches wide. Fold back 1 inch along the entire width of the paper.



2. Lay your knife on the paper, one blade-width in from the edge, along the short side, with the tip inserted in to the 1 inch crease. Fold over the short edge to begin wrapping the blade in paper.



3. Continue to fold the paper, wrapping it around the blade in several layers.



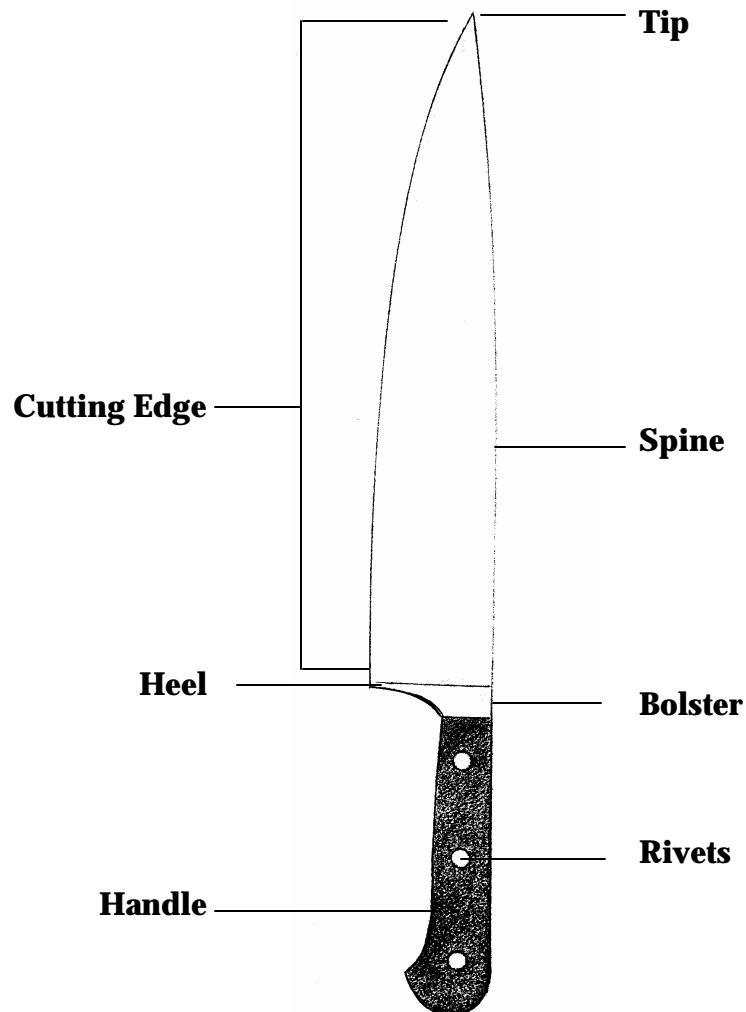
4. Use tape to secure the bottom and top of the sheath; use as many additional pieces of tape as needed to keep the sheath closed.

GENERAL KNIFE SAFETY & ETIQUETTE

- ☑ Handle knives with respect
- ☑ Always hold a knife by its handle
- ☑ Never attempt to catch a falling knife
- ☑ Never put a knife in your pocket
- ☑ Never run your fingers on the blade to check for sharpness
- ☑ Never cut any product you are holding in your hand
- ☑ Never borrow a knife without asking permission, and always return it promptly when you are finished using it
- ☑ When passing a knife to someone else, lay it down on a work surface and allow the other person to pick it up, or pass it handle first (the handle extended to the person receiving the knife)
- ☑ Keep knives sharp and clean – be sure to wash, rinse and sanitize your knife between uses
- ☑ Never use the same knife when switching from meat to vegetables, or from raw to cooked foods, unless it's been thoroughly cleaned and sanitized
- ☑ Always use an appropriate cutting surface – cutting directly on metal, glass, or marble surfaces will dull and eventually damage the blade of a knife
- ☑ Do not allow the blade of a knife to extend over the edge of a table or cutting board
- ☑ Use knives for intended purposes only
- ☑ Do not use knives to open bottles, loosen drawers, and so on
- ☑ Do not leave knives loose in areas where they cannot easily be seen or wouldn't be found normally (under tables, on shelves, and similar spots)
- ☑ Keep knives properly stored
- ☑ If you must carry an unsheathed knife in the kitchen, hold it straight down at your side with the sharp edge facing behind you

IDENTIFYING THE DIFFERENT PARTS OF A KNIFE

A knife is constructed from several parts, each of which plays a role in the utility, balance, and longevity of the whole. To select a knife of good quality that fits your hand well and is suitable for the intended tasks, you need a basic knowledge of the various parts of a knife.



THE BLADE

Currently, the most frequently used material for blades is high-carbon stainless steel. High-carbon stainless steel is a relatively recent development that combines the advantages of carbon steel and stainless steel. The higher percentage of carbon allows the blade to take and keep a keener edge; the fact that it is stainless steel means that it will not discolor or rust readily.

Metal knife blades are either forged or stamped. **Forged blades** are made by heating a rod of high-carbon stainless steel to around 1700° F. The heated metal is dropped into a mold, then struck with a hammer to pound it to the correct shape and thickness. One of the advantages of a forged blade is that its thickness tapers from the spine to the edge and from the heel to the tip, which gives it the correct balance. After the blade is shaped, it is tempered to improve its strength and durability. Forged blades are generally more durable, better balanced, and of good quality.

Stamped blades are made by cutting blade-shaped pieces from sheets of previously milled steel. These blades are of a uniform thickness and may be lighter than some forged blades. Today's stamped blade knives are better balanced than their predecessors, and improved techniques for tempering the metal used has also improved their durability and quality.

After the blade is shaped by either forging or stamping, the edge is created. Several types of edges can be used to create a knife, depending upon the intended use.

The most desirable type of blade for general use is **taper-ground**, meaning that the blade has been forged out of a single sheet of metal and has been ground so that it tapers smoothly from the spine to the cutting edge, with no apparent beveling. The angle of the "V" can be gentle or extremely severe, almost wedge-like. Taper ground blades are well-suited to general-purpose knives and those used for heavy cutting and chopping work since they keep the blade quite stable.

Hollow-ground blades are made by combining two sheets of metal. The edges are then beveled or fluted. The sides of the blade near the edge are ground away to form a hollow, giving the blade an extremely sharp edge. The greater the arc of the hollow, the sharper the edge. Hollow-ground blades are well-suited to carving and slicing tasks. Although hollow-ground blades often have very sharp edges, the blade itself lacks the balance and longevity of a taper-ground blade.

THE BOLSTER

In some knives there is a collar or shank, known as a ***bolster***, at the point where the blade meets the handle. The bolster gives the blade greater stability, strength, and is a sign of a well-made knife, one that will hold up for a long time.

THE TANG

The ***tang*** is actually a part of the blade itself. It is the point at which the handle is attached to the knife. Tangs may be full or partial. A full tang extends the entire length of the handle, giving it greater heft. Knives with a full tang are sturdy, well balanced, and long-lasting. Full tangs are essential for heavy work; chef's knives or cleavers should have a full tang.

A partial tang does not run the full length of the handle. Although blades with partial tangs are not as durable as those with full tangs, they are acceptable for less frequently used knives or those used for lighter work, such as bread knives, paring, utility, and some slicers. Rat-tail tangs are much thinner than the spine of the blade and are encased in the handle, which means that they are not visible at the top or bottom edges. These tangs tend not to hold up under extended use.

THE HANDLE

Knife handles are made of various materials, including hard woods with very tight grain, such as walnut and rosewood, textured metal, and composition materials (vinyl); some are cushioned to make long hours of work less fatiguing.

Wooden handles are attached to the blade with rivets. If rivets are visible on the handle, they should lie flush with the surface of the handle to prevent irritation to the hand and to avoid creating pockets where microorganisms could gather. Composition handles are molded onto the tang.

TYPES OF KNIVES

A wide array of knives is available to suit specific functions; you should decide to purchase a special knife only after evaluating whether your work requires it.

CHEF'S KNIFE OR FRENCH KNIFE

This all-purpose knife is the most often used item in any knife kit. It is designed and manufactured for wide-ranging general use in the kitchen. The blade is shaped and worked so that it can peel and trim, slice, chop, mince, fillet fish, and fabricate meats and poultry. The blade typically ranges from 8-12" in length and about 1 ½ - 2" wide at the heel or bolster. A good-quality chef's knife should be well-balanced, with the weight of the blade equaled by the weight of the handle.



UTILITY KNIFE

This smaller version of the chef's knife is used for light cutting, slicing, and peeling chores. The blade is shorter than a chef's knife and also thinner and lighter; making it useful for slicing smaller items, such as tomatoes.



PARING KNIFE

The second most-often-used knife. The knife, used primarily for paring and trimming vegetables and fruits, has a 2-4" blade. Some blades taper to a point, others have a curve or bend at the tip, sometimes referred to as a Granny knife.



BONING KNIFE

Used to separate raw meat from the bone. The blade is thinner and shorter than the blade of a chef's knife – about 6" long – and is usually rigid. Some boning knives have an upward curve; others are straight. The blade is narrower than a chef's knife blade to make it easier to work around bones, muscle groups, and under gristle and silverskin.



FILLETING KNIFE

Specifically designed for filleting fish, this knife is similar in shape and size to a boning knife, but has a more flexible blade. This permits you to separate the delicate flesh of a fish from the bones easily, with little loss of edible fish.



SLICER

This knife is used for slicing cooked meat. They have long, narrow blades in order to make smooth slices in a single stroke. The type of edge (taper-ground or fluted) on the blade is designed to make a particular food easier to slice. Some blades are quite flexible and others are rigid, their selection is governed by the character of the item being sliced.



CLEAVER

Used for chopping, the cleaver is often heavy enough to cut through bones. It has a rectangular blade and varies in size according to its use. Japanese – or Chinese-style cleavers are used for the same applications as a chef’s knife – to slice, chop, trim, dice, disjoint birds and rabbits, fillet and portion fish, and so forth. These cleavers usually have a single-sided edge.



SCIMITAR

The long curved blade of a scimitar makes it well-suited to the slicing action required to cut through large cuts of raw meat when portioning them into steaks, cutlets, or medallions. The blade can range in length from 12-16”.



SHARPENING AND HONING TOOLS AND THEIR USES

A knife kit is not considered complete without sharpening and honing tools; the key to proper and efficient use of any knife is making sure that it stays sharp. A knife with a sharp blade always works better and more safely because it cuts easily, without requiring the chef to exert pressure which may cause the knife to slip and cause injury. Knife blades are given an edge on a sharpening stone and maintained between sharpening by honing with a steel.

SHARPENING STONES

Sharpening stones are essential to the proper maintenance of knives. The blade is sharpened by passing its edge over the stone at a 20-degree angle. The grit – the degree of coarseness or fineness of the stone’s surface – abrades the blade’s edge, creating a sharp cutting edge. When sharpening a knife, always begin by using the coarsest surface of the stone, and then move on to the finer surfaces.

A stone with fine grit should be used for boning knives and other tools on which an especially sharp edge is required. Most stones may be used either dry or moistened with water or mineral oil. Once oil has been used on a stone’s surface, that practice should be continued. The standard size for sharpening stones is 8 x 2 inches.

There are three basic types of stones commonly available:

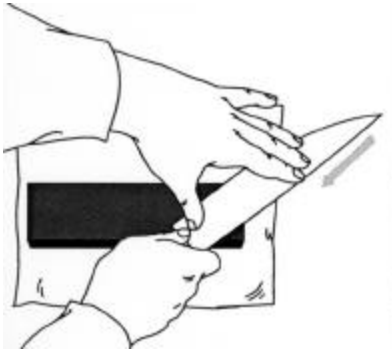
- **CARBORUNDUM STONES** have a fine side and a medium side.
- **ARKANSAS STONES** are available in several grades of fineness. Some consist of three stones of varying degrees of fineness mounted on a wheel.
- **DIAMOND-IMPREGNATED STONES** are also available. Although they are expensive, some chefs prefer them because they feel these stones give a sharper edge.

Opinion is split about whether a knife blade should be run over a stone from heel to tip or tip to heel. Similarly, some chefs prefer to use a lubricant such as mineral oil on their stones, while others prefer water. Which method to use is a matter of preference and training. However, most chefs do agree that consistency in the direction of the stroke used to pass the blade over the stone is important. Once you find the method that suits you best, be sure to use the same technique every time.

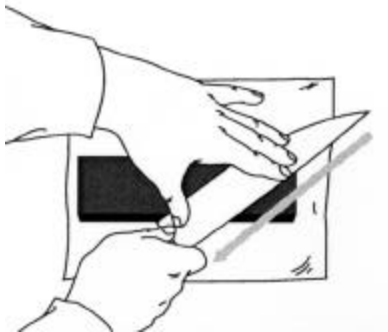
GUIDELINES FOR SHARPENING STONE USE

- ✔ Allow yourself enough room to work
- ✔ Anchor the stone to keep it from slipping as you work
- ✔ Place carborundum or diamond-shaped stones on a damp cloth or rubber mat
- ✔ Lubricate the stone with mineral oil or water – be consistent about the type of lubricant you use on your stone
- ✔ Water or mineral oil helps to reduce friction as you sharpen your knife; the heat caused by friction may not seem significant, but it can eventually harm the blade
- ✔ Begin sharpening the edge on the coarsest grit your require; the duller the blade, the coarser the grit should be
- ✔ Run the entire edge over the surface of the stone, keeping the pressure on the knife even, hold the knife at the correct angle as you work (a 20° angle is suitable for chef's knives and knives with similar blades)
- ✔ Always sharpen the blade in the same direction; this ensures that the edge remains even and in proper alignment
- ✔ Make strokes of equal number and equal pressure on each side of the blade - do not oversharpen the edge on coarse stones – after roughly ten strokes on each side of the blade, move on to the next finer grit
- ✔ Finish sharpening on the finest stone, and wash and dry the knife thoroughly before use or storage

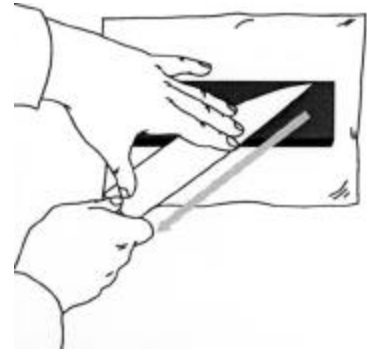
SHARPENING METHOD ONE



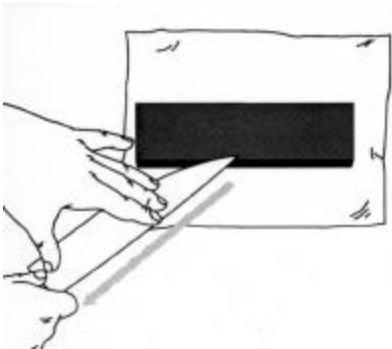
Use four fingers of the guiding hand to maintain constant pressure.



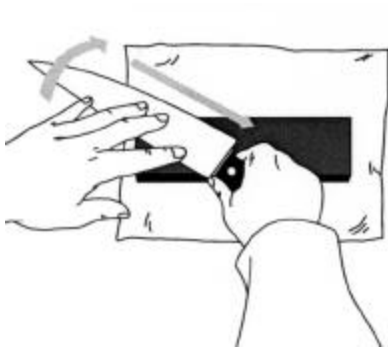
Draw the knife across the stone gently.



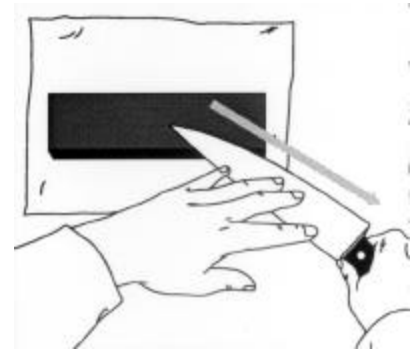
Continue the movement in a smooth action.



Draw the knife off the stone smoothly.

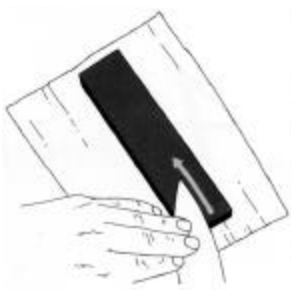


Turn the knife over and repeat the process on the other side.

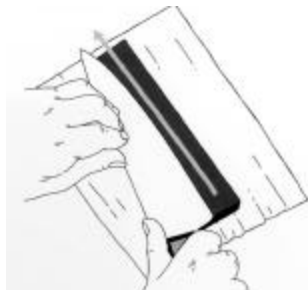


Draw the knife off the stone smoothly.

SHARPENING METHOD TWO



Push the blade over the stones surface, using the guiding hand to keep pressure even.



Continue to push the entire length of the blade over the stone.



Push the knife off the stone smoothly.



Turn the knife over and repeat the process on the other side.

STEELS

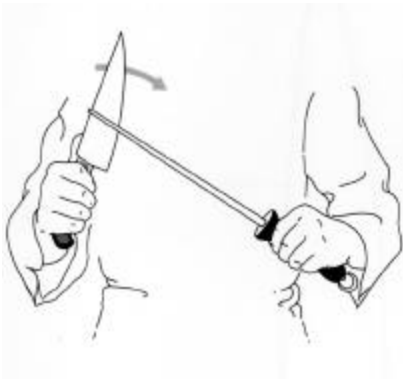
A steel should be used immediately before sharpening the blade with a stone, and also between sharpenings, to keep the edges in alignment. It should also be within reach anytime you are using your knives. The length of the steel's working surface can range from 3" for a pocket version to over 14". Hard steel is the traditional material for steels; other materials, such as glass, ceramic, and diamond-impregnated surfaces, are also available.

Steels come with coarse, medium, and fine grains, and some are magnetic, which helps the blade maintain proper alignment and also collects metal shavings. A guard or hilt between the steel and the handle protects the user, and a ring on the bottom of the handle can be used to hang the steel.

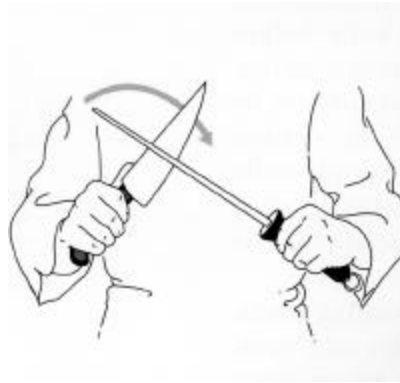
GUIDELINES FOR PROPER USE OF A STEEL

- ☑ Allow yourself enough room to work, and stand with your weight evenly distributed
- ☑ Hold the steel with your thumb and fingers safely behind the guard
- ☑ Draw the blade along the steel so that the entire edge touches the steel, work in the same direction on each side of the blade to keep the edge straight
- ☑ Be sure to keep the pressure even to avoid wearing away the metal in the center of the edge; over time, this could produce a curve in the edge
- ☑ Keep the knife blade at a 20° angle to the steel
- ☑ Use a light touch, stroking evenly and consistently
- ☑ Lay the blade against the steel gently; listen for a light ringing sound – a heavy grinding sound indicates too much pressure is being applied
- ☑ Repeat the strokes on the opposite side of the edge to properly straighten the edge
- ☑ If a blade requires more than 5 strokes per side on a steel, it probably should be sharpened on a stone

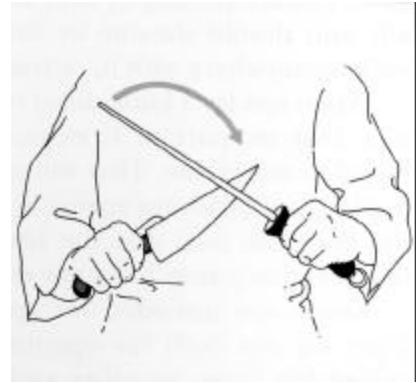
STEELING: METHOD ONE



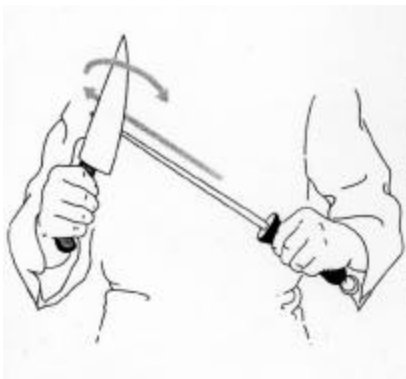
Start with the knife nearly vertical, with the blade resting on the steel's inner side.



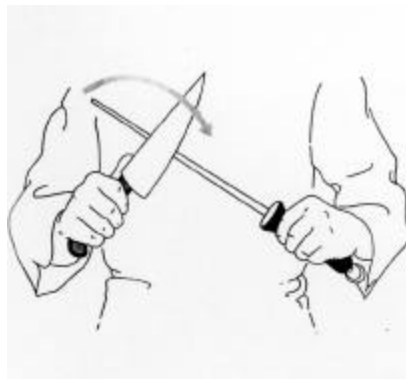
Rotate the wrist as the blade moves along the steel.



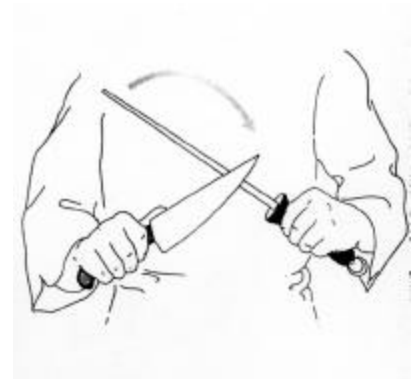
Keep the blade in contact with the steel for the last few inches.



Return the blade to a nearly vertical position, this time on the outer side of the steel.

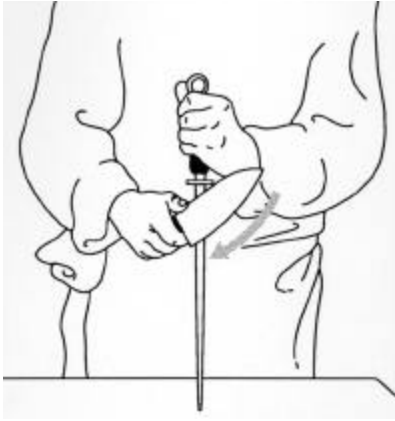


Use the thumb to maintain even, light pressure.



Finish the second pass.

STEELING: METHOD TWO



Hold the knife in a near-vertical position with the tip resting on a non-slippery surface. Start with the heel of the knife against one side of the steel.



Maintain light pressure and use an action, not a wrist action, to draw the knife down the shaft of the steel.



Continue in a smooth motion.



Finish with the knife by drawing it all the way through the tip.



Repeat the action with the blade against the steel's other side.



Complete the movement.