VIKING

COOKING SCHOOL

Basic Knife Skills

Student Handout

Basic Knife Skills - Introduction

No other kitchen tool is more important than the knife. The only piece of "equipment" more basic to cooking is the human hand. Good quality knives will make your work easier, more efficient, and more enjoyable; furthermore, good knives, when properly cared for, will last a lifetime. Knives should be selected, sharpened, cleaned and handled with great care and respect.

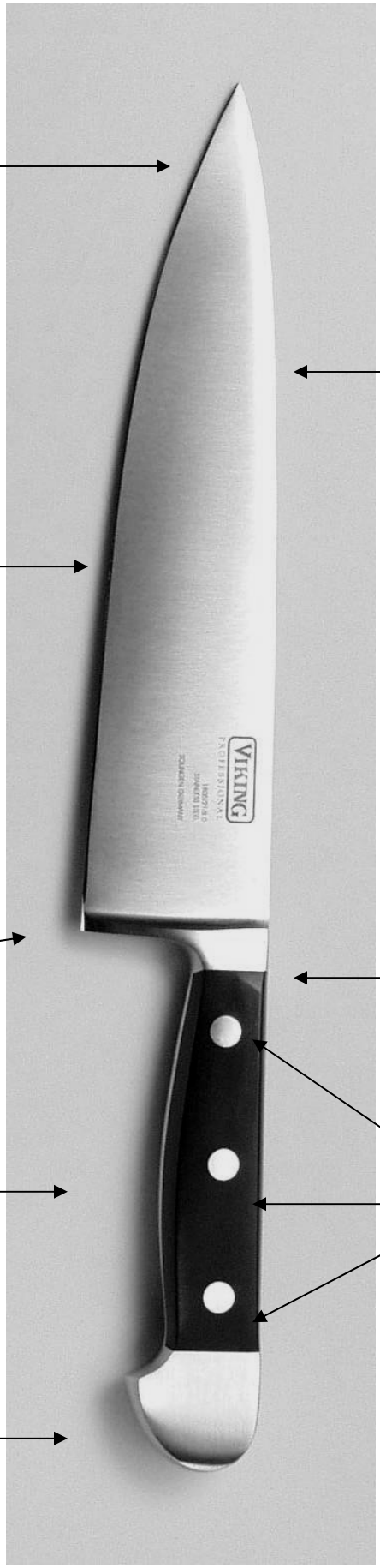
Safety

- **Keep your blades sharp!**
- **Only cut on appropriate surfaces, never on metal, glass, or hard stone such as marble or granite.**
- **Never attempt to catch a falling knife.**
- **Use the right knife for the task at hand.**
- **Never use a knife for any purpose other than what it was intended – e.g., never use your knife to open a can or pry something loose.**
- **Do not leave your knives in a sink full of water.**
- **Pass a knife by its handle.**
- **Always cut away from yourself; never cut towards yourself.**
- **Learn and use the proper grip for your knife.**
- **Keep fingers on guiding hand curled.**
- **When walking with a knife, hold it closely to your side with the tip-end down and the blade facing away from you.**

Knife Nomenclature

- **Tip or Point –** The tip end of the blade may vary in shape, depending on the type and style of the knife. The most common shapes are a point or a rounded end.
- **Back or Spine –** The thicker, unsharpened edge of the blade.
- **Cutting Edge –** The sharpened edge of the blade. The edge may be one of several types: plain, with a cross section revealing a gentle taper to a long or abrupt V-shape; hollow-ground with a distinct concave area running down the length of each blade side; granton, with elongated ovals ground into the flat side of the blade perpendicularly to the cutting edge and staggered alternately on each blade side; and serrated edges, which end as a series of tiny, V-shaped teeth.
- **Heel –** The rear edge of the blade that extends below the bottom line of the handle.
- **Bolster or Shoulder –** The thick band of steel on forged blades that runs perpendicular across the blade from the heel to the spine.
- **Tang –** The unsharpened rear extension of the blade that extends into the handle. Tangs may be full, partial or rattail. (See Knife Selection / Construction for definitions)
- **Handle –** The handgrip that is typically covered with metal, plastic, wood or bone applied in either one or two pieces. Occasionally, it is simply an extension of the blade steel, like those on some Asian-style knives and Chinese cleavers. It more often appears as a stylized rectangle, tube, bulb or knob with a smooth, ribbed, or textured finish.
- **Rivets –** The metal studs that attach the handle to the tang of the knife.
- **Butt –** The rear end of the handle.

Anatomy of a Knife



TIP or POINT

BACK or SPINE

CUTTING EDGE

HEEL

BOLSTER or SHOULDER

HANDLE

RIVETS

TANG *(not shown)*
Runs from the bolster to the butt inside the handle

BUTT

Knife Selection

When selecting a knife, consider the composition, construction, comfort, and the job for which the knife will be used.

Composition – What is the blade made of?

- **Carbon Steel** takes and holds the sharpest edge; however it discolors, pits easily, and can interact with acidic foods.
- **Stainless Steel** stays clean and is non-reactive; this material is so hard that it is very difficult to sharpen and the blade dulls easily.
- **High-Carbon Stainless** offers the best of both materials; it has enough carbon steel to take and hold a sharp edge plus all the virtues of stainless. It is considered by many to be the best overall choice.

Construction – How is the knife made?

- **Stamped Blades –** Created by feeding long, fairly thin sheets of steel through a press that stamps out the blades. They are then tempered (heated and cooled repeatedly) to strengthen the steel, sharpened and finished. Because machines perform most of the work, these blades tend to be less expensive. They also tend to be lighter in weight than a fully forged blade. A stamped blade is thin with even thickness from handle to tip.
- **Forged Blades –** Created by heating a piece of steel to above 2,000°F, then placing it into a mold and hammering to refine its shape. Excess metal is ground away, then the blade is tempered, sharpened and finished, a process that can take as many as 100 steps. A forged blade is thinner at the tip of the blade and thicker at the handle with a telltale band of steel known as the bolster or shoulder. These blades tend to be heavier than stamped blades. Because of the high craftsmanship and the labor-intensive construction, these knives tend to be more expensive and are highly regarded by many as superior to stamped blades.
- **Full Tang –** The unsharpened rear extension of the blade onto which the handle is attached is known as the tang. A full tang runs the entire length of the handle with a shape to match. Full tang knives tend to be heavier and more evenly balanced than those with lesser tangs.
- **Half or Three-Quarter Tang –** While shaped like the knife, the tang extends only partially into the handle.
- **Rattail Tang –** Runs like a rod down the length of the handle.

Types of Knives

It's important to use the right knife for the right job. There are many specialized knives, but the majority of daily kitchen tasks may be accomplished with a few good, basic knives.

Must-Haves:

- Chef's Knife (also called French or Cook's Knife)
- Paring Knife
- Serrated Knife

Nice-to Haves:

- Santoku or hollow-ground chef's knife
- Utility Knife, 6-inch
- Bird's Beak or Tourné Knife
- Slicing/Carving Knife, 12-inch
- Boning Knife
- Flexible Boning Knife (for chicken or fish fillets or a rigid one for meat)
- Cleaver

- **Chef's Knife (French Knife or Cook's Knife):** Typically 8 to14-inches long, this all-purpose knife used for chopping, slicing and mincing is the workhorse of the kitchen. The tapered blade curves up at the tip to facilitate its ability to be used with a rocking motion for chopping and mincing. These knifes are purposely fairly heavy, as their weight assists with chopping and mincing tasks.
- **Hollow-ground Chef's Knife:** Typically 8-inches in length, this knife combines the classic tapered blade of the chef's knife with the hollow-ground blade design of the santoku and the meat slicer. Considered by many to be the best of both worlds, the shape of the blade facilitates its ability to be used with a rocking motion for chopping and mincing, while the hollow-ground feature reduces drag when cutting and slicing delicate fish, meats, fruits or vegetables
- **Santoku:** Compared with a classic chef's knife, the santoku is typically shorter and has a thinner blade, a stubbier tip, and a straighter edge. It is thought to have evolved from the narrow, rectangular Japanese vegetable knife and may be called an Asian chef's knife. It may have a smooth or a granton blade (hollow-ground with oval recesses along the blade). The thinness of the blade makes it an excellent choice for delicate or precise knife work, most notably for slicing. Because it does not have as curved a tip as the French or chef's knife, it does not rock as easily for standard chopping and mincing.
- **Utility Knife:** Typically 5 to 7-inches long, it is a smaller, lighter version of the chef's knife. It may be used as a chef's knife on smaller items or as a paring knife on larger items.
- **Paring Knife:** Typically 3 to 4-inches long, a paring knife looks very much like a chef's knife, but is considerably smaller. Structurally, because the parer is not an impact tool, the curve of a paring knife blade is usually not as pronounced as that of most chef's knives. Instead, a paring knife works more as an extension of your hand and is used for paring and trimming fruits and vegetables.
- **Bird's Beak or Tourné:** Typically 2 to 4-inches long, this small knife is similar to a paring knife, but with a pronounced forward curve in the blade at the tip. Used to peel vegetables and carve rounded surfaces on vegetables (such as tourné vegetables).
- **Boning Knife:** Approximately 6-inches long, its stiff, thin blade is used to separate raw meat from the bone. It typically has a pronounced heel that helps to stop the knife at the handle when it is thrust into firm meat.
- **Fillet Knife:** Approximately 6-inches long with a flexible blade, it is used for filleting fowl and fish. Its flexibility allows it to move smoothly over delicate bones that would be cut by a firm boning knife.
- **Slicer or Carving Knife:** Typically 10 to 16-inches long, it is used for slicing cooked meats. The long blade may be wide or narrow, flexible or rigid, have a rounded or pointed tip, and have a smooth or modulated surface. The heavier, hard-bladed slicers are designed to cut broader slices through hot, softer meats. If the surface of the meat is firm and relatively dry (as in cold roast or a ham), the meat is less resistant, and the thinner, narrower blades are suitable.
- **Cleaver:** Comes in various sizes with a rectangular blade, it is usually heavy and is traditionally used for chopping through bones and large pieces of meat.

- **Serrated Knife:** Typically 8 to 12-inches long, it is also referred to as a bread knife, as the serrated blade is perfect for cutting breads, pastries, tomatoes or other soft foods. It is also an excellent choice for large, very hard vegetables such as butternut squash. The combination of the serrated teeth used with a sawing motion allows you to break through the hard skin without as much pressure or force as would be required with a non-serrated blade, and consequently is much safer.

Use and Care of Cutlery

- Always clean your knife thoroughly after each use so that it will not become a site for food cross-contamination.
- It is not recommended to put your knives in the dishwasher. Wash them carefully by hand with warm soapy water, then dry them and put them away.
- Store your knives properly. If they are to be stored in a drawer, they should be sheathed to protect their edge and to reduce the danger of being cut by the exposed blade. Alternatively, knives may be stored on a magnetic knife rack (make sure the magnets are strong enough to hold your heaviest knives), in a knife block or knife roll. Be sure to always store knives clean and to their keep storage compartments clean.
- Do not hold knives in a flame or dip them into a pot of hot food.
- Do not use knives to pry up jar lids or for any other unintended uses.
- Use the right knife for the task; do not use a lightweight tool for a heavy-duty task.

Sharpening Knives

A sharp knife is a safe knife, as well as a pleasure to use. There are basically two types of sharpeners; those that straighten or realign the edge and those that grind and reshape or "set" the edge. If you were to look at a knife under a microscope, you would see that it is made up of thousands of small cutting teeth. Through use, these teeth become misaligned. Using a steel will effectively realign these teeth. After prolonged use, however, the edge will need to be reground. This requires shaving small bits of metal from the edge to reshape it. The reshaping requires that the blade be ground at very precise angles; the most durable edges are created using two or three angles in a single edge. You may take your knife to a professional to have the edge reground, or you may use a stone to sharpen it yourself. Achieving perfect angles using a stone requires a great deal of practice and expertise. Another option is to use an electric knife sharpener that has preset angles to allow you to sharpen and hone the knife at the correct angle. These require much less skill than using a stone and are very reliable when used according to the manufacturer's instructions. Additionally, unlike a stone, which produces a single-angled edge, electric sharpeners typically produce strong, durable two and three-angle edges, so the knife remains sharper for a longer period of time.

Using a Sharpening Stone:
A knife blade is sharpened by passing its edge over a rectangular abrasive stone. The grit (the degree of the coarseness or fineness of the stone) wears away the blade's edge producing a sharp cutting edge. The angle of the knife to the stone must be very precise to produce a proper edge. Most stones may be used either dry or moistened with water or oil. If you choose to wet the stone, always use the same type of liquid (either oil or water) to moisten it. If you use oil, it should be mineral oil, not a cooking oil such as vegetable, olive, or canola oil. Before using a stone, make sure the stone is secure. Place the stone on a dampened cloth to stabilize it. Hold the blade at a 20 degree angle to the surface of the stone and draw the full length of the blade across the stone. Apply light even pressure. Repeat these strokes the same number of times on each side of the blade. Wipe the blade free of any particles before changing to a different degree of stone or before honing on a steel.

Using an Electric Sharpener:
Most electric sharpeners have several slots, each of which is designed to grind the knife edge at a different angle. In the first stage of grinding, sometimes called pre-sharpening, the knife is placed in a slot that removes the dull edge and creates the first bevel, or angle, of the two that together make up the knife's edge. This first angle (called the relief angle) is typically around fifteen degrees to the face of the blade. The knife is then moved to a different slot, which makes a slightly more sloped bevel (the sharpening angle) that comes to the point of the edge. The result is a double-beveled edge, which is very strong, very durable, and will resist dulling. Some sharpeners cut a third bevel for an even stronger edge.

Using a Sharpening Steel:
A steel, a long round or oval rod with a handle, must be harder than the material from which the knife is made. Consult your knife manufacturer for recommendations on an appropriate model for your knives. A steel should be used both immediately after sharpening the blade on a stone and also between sharpenings to maintain the edge. Steels help the blade maintain proper alignment. When using a steel maintain the same 20 degree angle as used on the stone. You may use a standard rod-type steel or one of the many pre-set angle devices available on the market today. These devices typically have two rods set in a V-shape at precise angles that allow you to draw the blade through the V, honing both sides of the blade at once. Be sure to draw the entire length of the blade along the entire length of the steel, and use an equal number of strokes on each side of the blade.

Selecting a Cutting Board

The natural partner to any knife is the cutting board. The two most important features of a cutting board are size and the material from which they are made. A board should be large enough to provide ample space for both cutting and pushing aside cut foods and waste. Cutting boards are made from many different materials, including wood (maple and bamboo), polyethylene (plastic), acrylic, glass and Corian. Each of these materials has different characteristics. Hard acrylic, glass, and Corian boards absorb none of the shock of the knife strike. These very hard boards result in knives becoming dull more quickly. Plastic (polyethylene) and wood are softer and therefore cushion the knife's blow, making for a better controlled, more pleasant cutting experience as well as retaining the sharpness of your knife longer. Of these choices, plastic is harder than wood, and bamboo is 16% harder than maple.

While scientific studies show that wood boards harbor fewer bacteria than plastic boards, the key to safe handling is keeping whatever type board you use clean. Researchers and government officials recommend washing every board well after each use, in the dishwasher, if possible, or by hand with hot soapy water, and then sanitizing with a light bleach solution (1 tablespoon of bleach to 1 gallon of water). Plastic boards may be put in the dishwasher, but should be positioned away from the heating element to prevent warping. Maple and bamboo boards must be hand-washed and dried, as well as oiled periodically with food grade mineral oil, but are aesthetically more pleasing than plastic.

Many experts recommend having several boards, each dedicated to specific tasks; one for raw poultry, one for all other raw proteins, and one for fruits and vegetables. Another option is to use flexible plastic cutting sheets as overlays on your regular board.

Proper Hand Position for Using a Chef's Knife

The proper way to hold a chef's knife is to grasp the blade firmly between the pad of your thumb and the knuckle of your index finger just in front of the bolster, curling your remaining fingers around the bottom of the handle. Resist the temptation to extend your index finger along the spine of your knife, because that method results in a lack of control of the angle you are working with. The hand not holding the knife is known as the guide hand; it's crucial to be aware of the position of your guide hand. The fingertips should be tucked under and resting lightly on the cutting board, with the knuckles slightly forward. Always keep your thumb tucked behind the gently curled fingers of your guide hand. This will prevent not only countless injuries, but also facilitate the use of your knuckles to guide the edge of your knife to its proper position for the next cut.

For safety, you may wish to use a finger guard, which is a stainless steel shield that fits over the fingers of the guiding hand. The interior of the shield has a welded ring that adjusts to the chef's middle finger. The tip of the shield holds the food to be sliced.

Basic Knife Cuts

Coarse Chopping: Usually used for items that will not be part of the finished dish; e.g., mirepoix (a mixture of onions, celery, and carrots used to flavor stock).

Mincing: A relatively even, very fine cut; especially appropriate for herbs and flavoring agents such as garlic and shallots.

Long Rectangular Cuts:
Julienne: A long rectangular cut 1/16 x 1/16 x 1 to 2-inches in length.
Batonnet: A ¼ x ¼ x 1 to 2-inches in length.

Cube Cuts:
Regular Brunoise [broo-NWAHZ]: A ⅛ x ⅛ x ⅛-inch cut.
Small Dice: A ¼ x ¼ x ¼-inch cut.
Medium Dice: A ⅓ x ⅓ x ⅓-inch cut.
Large Dice: A ¾ x ¾ x ¾-inch cut.

Other Cuts:
Rondelle: A simple cut used for cylindrical vegetables, such as carrots or parsnips, which produces a round disk. May be varied by cutting on the bias (diagonal).
Oblique or Roll Cut: Used primarily on cylindrical vegetables. The peeled vegetable is cut on the diagonal then rolled 180 degrees (a half turn) and cut through on the same diagonal.
Chiffonade: Also known as a ribbon cut, it is used to efficiently cut leafy vegetables and herbs into finely sliced strips or ribbons.

