4.1 Using Knives

READING PREVIEW

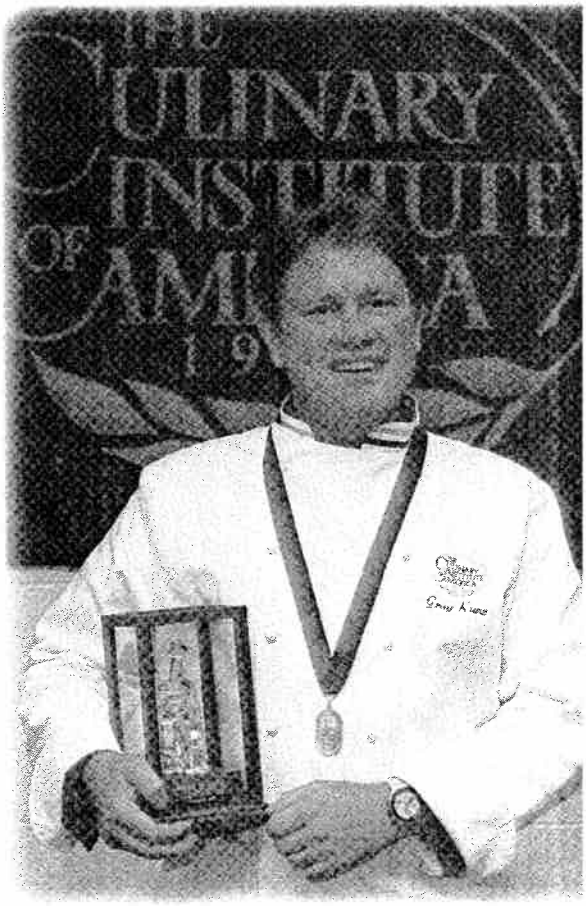
Key Concepts

- Identifying parts of a knife
- Selecting the appropriate knife
- Using a knife properly
- Making the cut
- Maintaining knives

Vocabulary

- batonnet
- bolster
- boning knife
- box grater
- brunoise
- chef's knife
- chiffonade
- cleaver
- cube
- diagonal cut
- dice
- fermière
- filleting knife
- forged blade
- gaufrette
- granton edge
- grit
- heel (of blade)
- honing
- julienne
- lozenge
- mandoline
- oblique cut
- paring knife
- paysanne
- rivet
- rondelles
- serrated edge
- scimitar
- slicer
- spine (of blade)
- stamped blade
- steel
- tang
- taper ground edge
- trueing
- tournée
- utility knife
- whetstone

> "Who you are is completely reflected in your knives—if they're sharp, if they're clean, and if they're put away in the proper manner."
>
> – Gray Kunz



Gray Kunz, Chef and Owner
Café Gray, New York, NY

Identifying Parts of a Knife

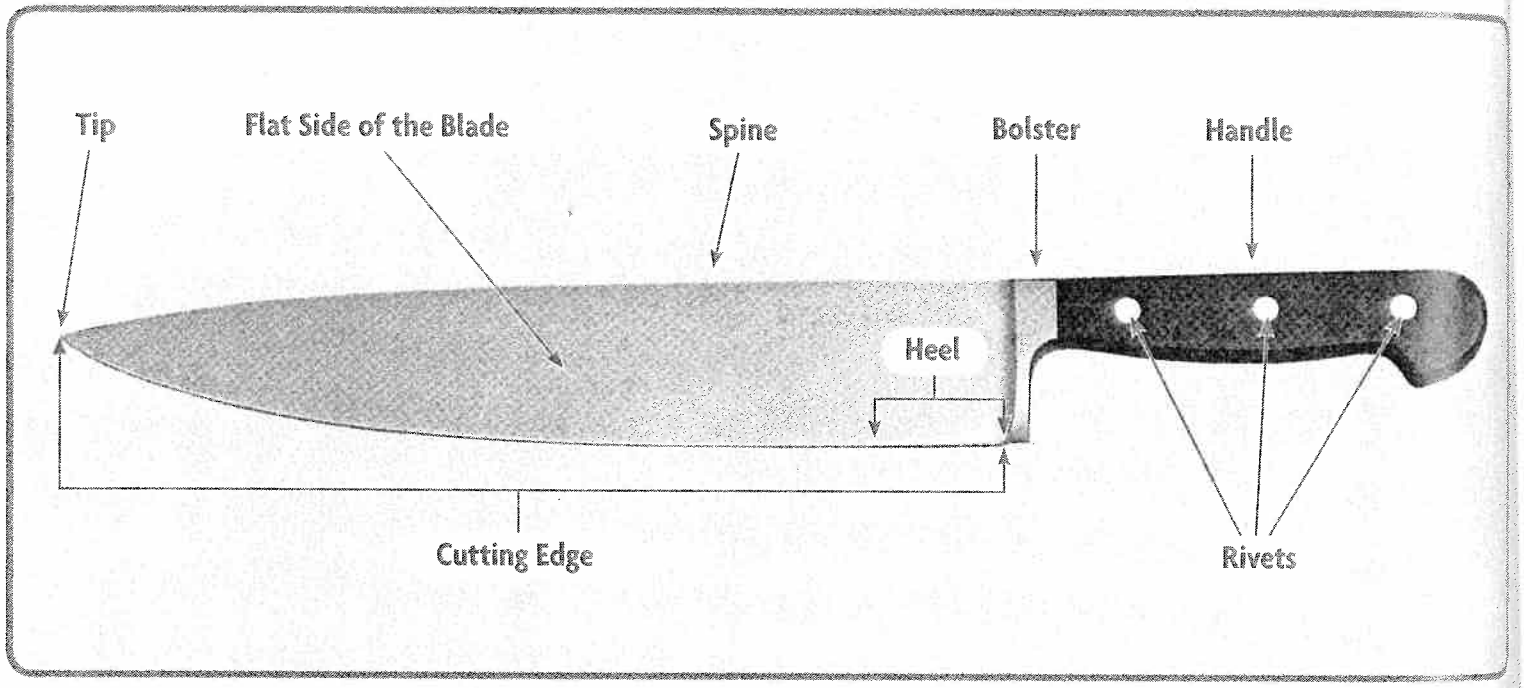
Probably no other kitchen tool is as important to a chef as a knife. To use this important tool well, a chef must know how each knife is constructed. A chef must know about the wide variety of knives, each designed for a specific task. A chef must know how to use a knife properly and how to make the cuts that are required for particular dishes. Finally, a chef has to know how to maintain a knife.

A knife is constructed from several parts—each of which determines how the knife feels in the chef's hand, how it is best used, and how long the knife will last.

The Blade The blade is the cutting surface of the knife. The blade of a high-quality professional knife is made of a single piece of metal that has been forged or stamped into its desired shape.

A **forged blade** is made from a single piece of heated metal that is dropped into a mold and then pounded and cut into shape. A **stamped blade** is made by cutting blade-shaped pieces from sheets of previously milled steel.

Blades are usually made of stainless steel or high-carbon stainless steel, but modern knives sometimes use ceramic material, or titanium. Stainless-steel blades are very hard and durable. They are made of chromium and carbon steel. They don't rust or discolor but are hard to sharpen. High-carbon stainless-steel blades are a mix of iron, carbon, chromium, and other metals.



The blade of the chef's knife has several distinct parts:

- **Tip.** Used for fine work, paring, trimming, and peeling. The tip can also be used to core fruits and vegetables or to score items so they will marinate or cook more evenly.
- **Cutting Edge.** Used for slicing, carving, and making precision cuts. The most common type of cutting edge for general use is a **taper ground edge**, in which both sides of the blade taper smoothly to a narrow V-shape.
- **Heel.** Used for cutting tasks that require some force. The **heel** of the blade is the widest and thickest point of the blade.
- **Bolster**. Located at the heel of the blade, at the point where the blade and handle come together. The **bolster** gives the blade greater strength and durability.

- **Spine.** The non-cutting edge of the blade is called the **spine** of the knife.
- **Flat side of blade.** Used to crush garlic.

The Tang The **tang** is the continuation of the blade into the knife's handle. Tangs can be either full or partial. A full tang is as long as the whole knife handle. Knives used for heavy work, such as chef's knives and cleavers, should have a full tang. Knives used for lighter work may have a partial tang that does not run the entire length of the handle.

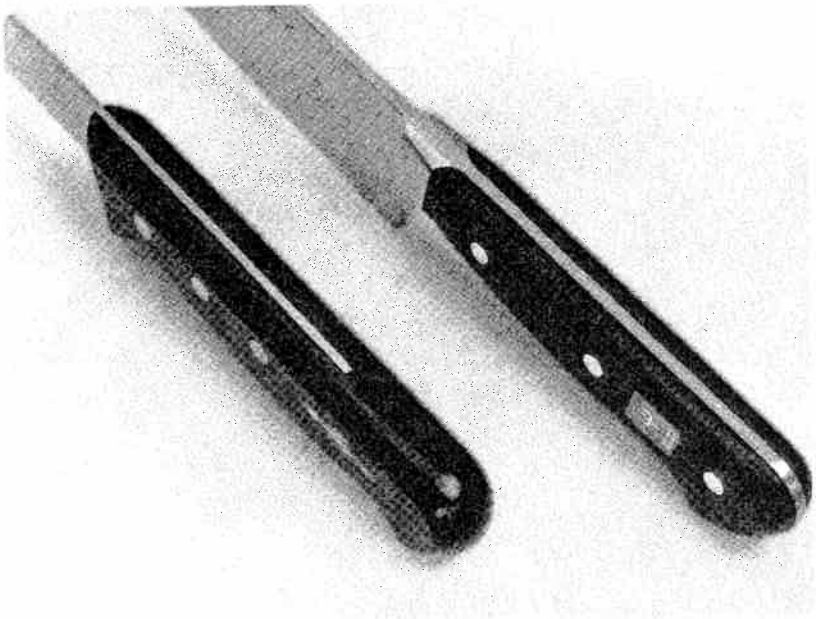


FIGURE 4-1
Different Types of Tangs
The knife on the left has a partial tang; the knife on the right has a full tang.
Drawing Conclusions ***Why would a knife with a full tang be used for heavy work?***

The Handle Knife handles are made of various materials, including hard woods with very tight grain, such as walnut and rosewood; textured metal; and composite materials. Some are cushioned to make long hours of work less fatiguing.

Wooden handles are attached to the blades with **rivets**. If rivets are visible on the handle (they aren't always), 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.

Because you will be holding your knife for extended periods, be sure the material and the shape of the handle feel comfortable in your hand. Many manufacturers offer a range of handle sizes.

Reading Checkpoint *What are the main parts of a knife?*

CHEF'S TIP

TRY BEFORE YOU BUY

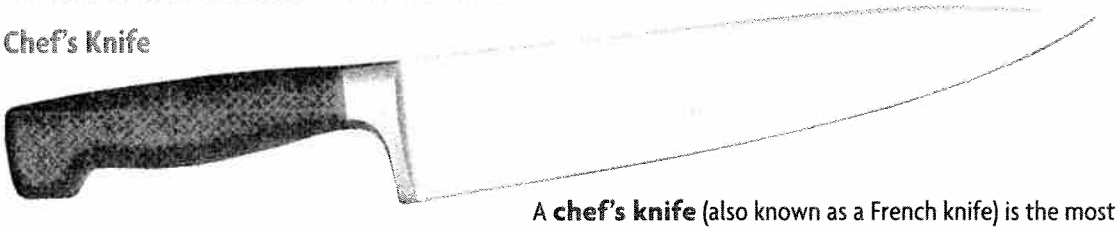
Before you buy a knife, try it. Feel the knife's overall balance. Check to see that the contour of the handle fits your hand comfortably. Try to get a sense of how well suited it is for your specific tasks.

Selecting the Appropriate Knife

There are almost as many types of knives as there are types of food. Each aspect of a knife—the length and flexibility of the blade, the type

Types of Knives

Chef's Knife



A **chef's knife** (also known as a French knife) is the most used knife. This all-purpose knife, with an 8- to 12-inch triangular blade, can be used for peeling, trimming, slicing, chopping, and dicing. A skilled chef can also use this knife to cut large foods into smaller pieces. A good quality chef's knife should be well balanced, with the weight of the blade equal to the weight of the handle.

Utility Knife

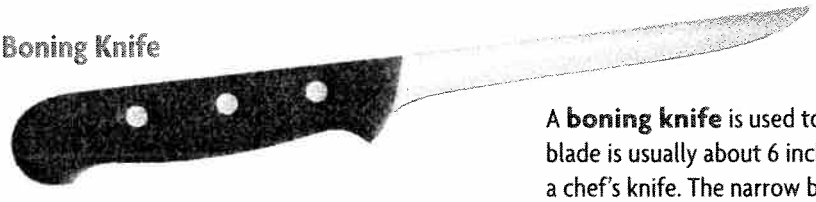
A **utility knife** is a smaller and lighter version of a chef's knife, with a 5- to 7-inch blade. It is used for light cutting, slicing, and peeling.

Paring Knives

A **paring** (PAIR-ing) **knife** is the second most frequently used knife. It has a 2- to 4-inch blade and is used mainly for peeling and trimming fruits and vegetables.

A **tournée** (TOUR-nay) knife is a type of paring knife with a curved blade, making cutting rounded surfaces easier. It is also known as a bird's beak knife.

Boning Knife



A **boning knife** is used to separate raw meat from the bone. The blade is usually about 6 inches long and is thinner than the blade of a chef's knife. The narrow blade allows you to work around bones, between muscles, and under gristle. Some boning knives have an upward curve; others are straight.

Filleting Knife

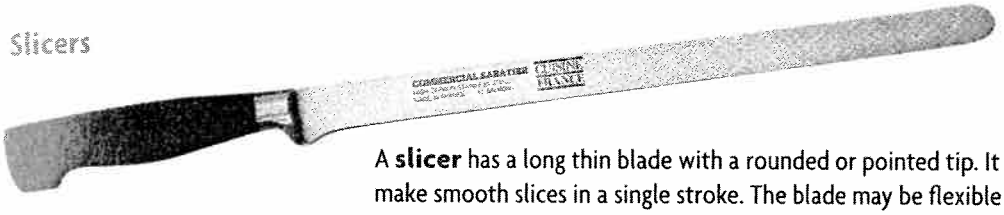
A **filleting** (fill-AY-ing) **knife** is specially designed for filleting fish. It has a very flexible blade.

of cutting edge, the strength of construction—is finely designed for a specific task.

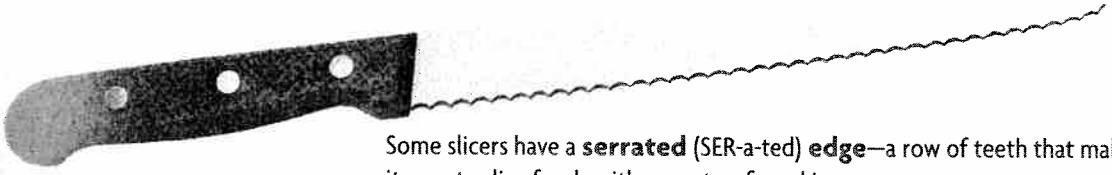
Reading Checkpoint

What are the eight basic types of knives?

Slicers



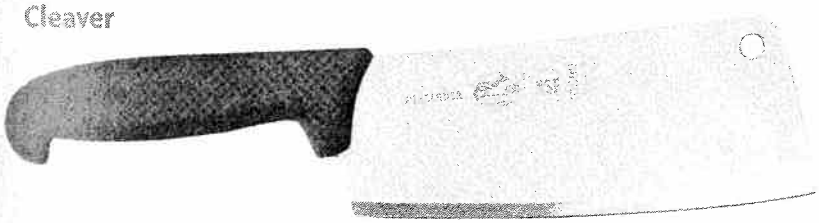
A **slicer** has a long thin blade with a rounded or pointed tip. It is used to make smooth slices in a single stroke. The blade may be flexible or rigid.



Some slicers have a **serrated** (SER-a-ted) **edge**—a row of teeth that make it easy to slice foods with a crust or firm skin.

Some slicers have a **granton** (GRAN-ton) **edge**, which means a series of ovals have been ground along the edge of the blade. Smoked salmon or moist meats sliced with this knife will not stick to the blade.

Cleaver



Cleavers have rectangular blades and vary in size. They can be used for many of the same applications as a chef's knife.

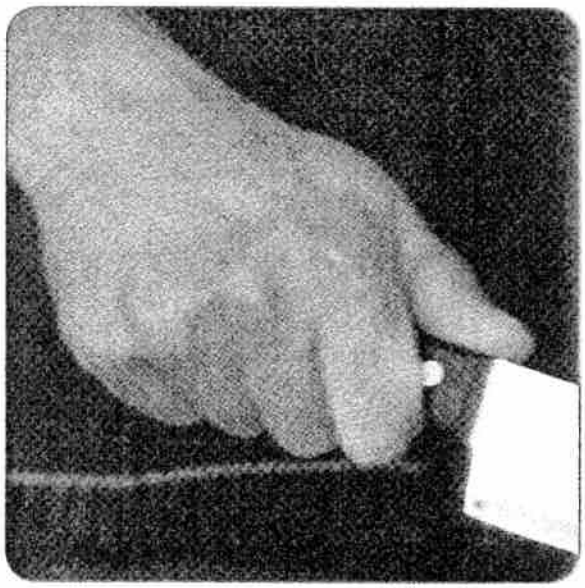
Scimitar

The long, curved blade of a **scimitar** (SIM-ah-tahr) makes it ideal for cutting through large cuts of raw meat when making them into steaks, cutlets, or medallions.

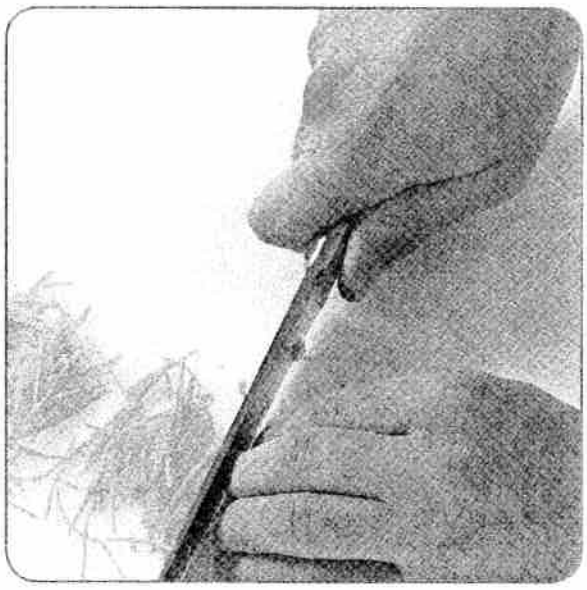
Using Knives Properly

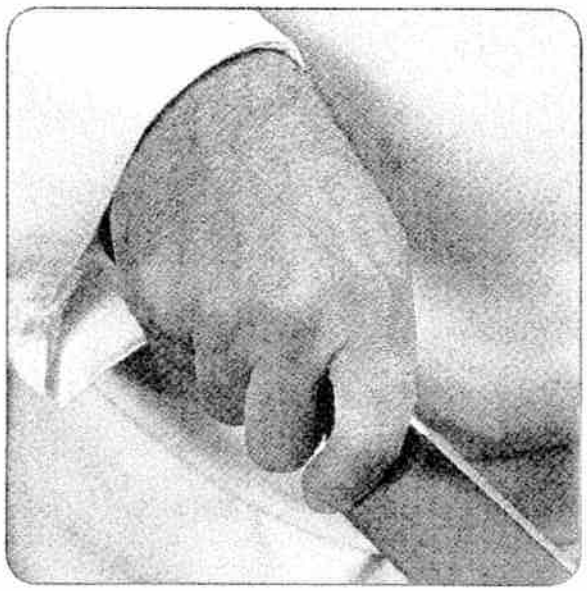
Remember when you first learned how to write? First you had to concentrate on holding the pencil and shaping each letter. With practice, writing became automatic and you developed your own unique signature. That is just like learning to use a knife properly. First you have to concentrate on holding the knife properly and shaping each item. Before long, using your knife becomes automatic and you develop your own unique style.

Holding the Knife



Method 1: Grip the handle with four fingers and hold the thumb firmly against the blade's spine. This method gives you more power.



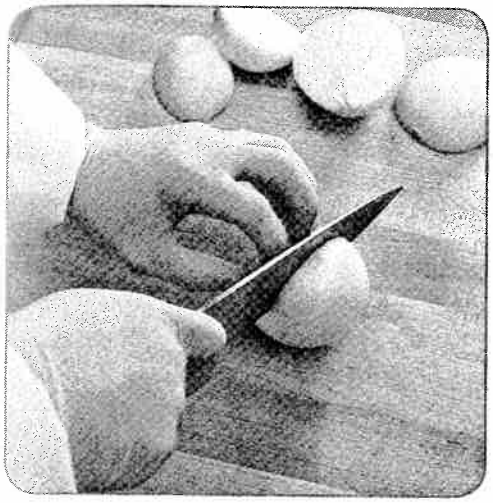


Method 2: Grip the handle with all four fingers and hold the thumb against the side of the blade. This method gives you more control.

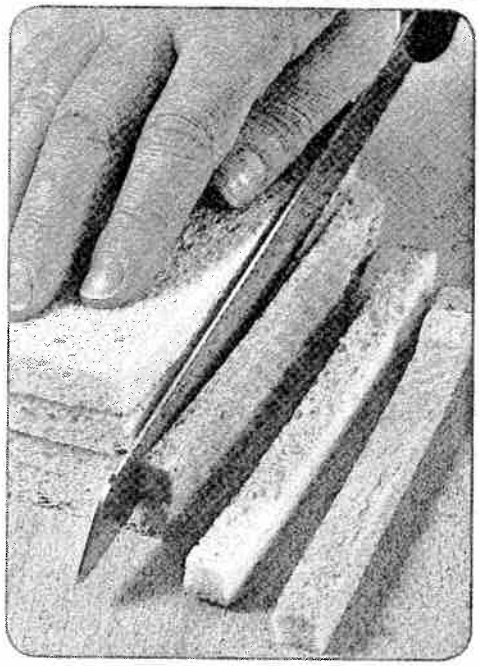
Method 3: Grip the handle with three fingers, resting the index finger flat against the blade on one side and holding the thumb on the opposite side. This method gives you most control.

Your choice of knife grip depends on the particular task, the specific knife, and your personal preferences. There are the three basic grips. While one hand holds the knife and makes the cuts, the other hand controls the food you are cutting.

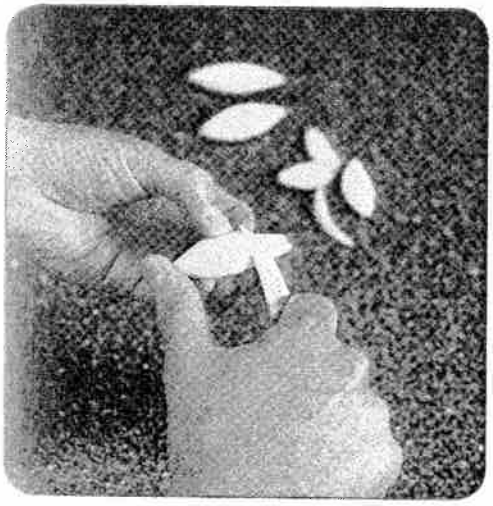
The Guiding Hand



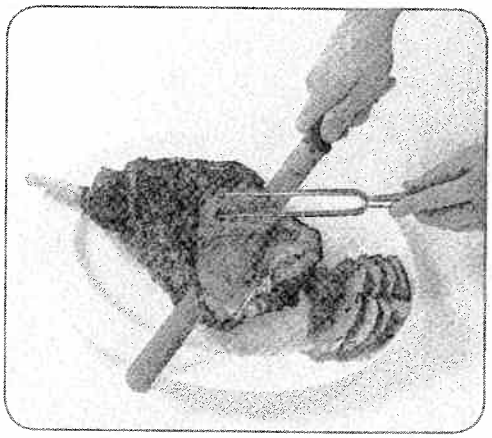
When cutting an object on the cutting board, tuck the fingers under the knuckles slightly and hold the object, with the thumb held back from the fingertips. The knife blade rests against the knuckles, making it impossible to cut the fingertips.



When cutting fish, meat, and bread, the guiding hand can be placed on top of the food to keep it from slipping. Hold your hand flat on the upper surface of the food and exert a little pressure.



The guiding hand is also used to hold a carving or kitchen fork when disjointing or carving cooked meats and poultry. The tines of the fork can either be laid across the surface or inserted directly into the food to hold it in place.



Sometimes while peeling or trimming, you may find yourself holding the food in the air, above the cutting surface. The guiding hand will hold and turn the food against the blade. Make sure the food, your hands, and the knife handle are all dry.

Reading Checkpoint

What are four ways the guiding hand is used in cutting with a knife?

Knife Safety

1. Always hold a knife by its handle.
2. Never try to catch a falling knife.
3. When passing a knife to someone else, lay the knife down on a work surface and allow the other person to pick it up.
4. If you must carry an unsheathed knife in the kitchen, hold it straight down at your side with the sharp edge facing behind you.
5. Never borrow a knife without asking permission, and always return it promptly after using it.
6. Do not allow the blade of a knife to hang over the edge of a table or cutting board.
7. Do not use a knife as a tool to open bottles, loosen drawers, and so on.
8. Do not leave knives loose in areas where they cannot easily be seen or wouldn't be found normally (in a filled sink, under tables, on shelves).
9. Never store or use a knife above waist level.
10. Always cut away from your body.

CHEF'S TIP

SAFE SLICING

To slice safely, place the flat side of the food down so it won't slip. For rounded or irregular food, cut off a piece to create a flat surface.

Making the Cut

The purpose of using a knife is to make a food smaller and to shape a food. Small, uniform pieces will cook evenly; large, irregularly shaped pieces won't. A uniform size also makes the finished product visually attractive.

Sometimes preliminary trimming, peeling, or squaring off is necessary to make the actual cuts easier. Foods with a uniform texture once they are peeled and trimmed (such as potatoes, carrots, celery, and turnips) can be cut by using the techniques described here. Foods that grow in layers (such as onions) or have pits, cores, or seeds (such as avocados or apples) all require special variations of these techniques. Meat, fish, and poultry that are still on the bone also call for special cutting and carving techniques. Special cutting techniques for these foods are covered in other chapters.

The basic cutting techniques are:

- Slicing
- Chopping and mincing
- Shredding and grating

Slicing Slicing cleanly through food should be no problem if a knife is properly sharpened. Simply guide the knife through the food, keeping the knife straight and even and letting the knife do the work. Adjust the length of your stroke and the pressure you exert on the food to suit the texture of the food you are slicing.

When you make clean, even slices, you can cut a wide range of foods from fruits and vegetables to meat and fish. Choose your knife carefully. Longer, thinner blades are best for very fine cuts or slices. Smaller blades are easier to manage with smaller foods.

Other food-preparation equipment, such as meat slicers or specialty disks for food processors, can be used for slicing. These are especially helpful when a large number of uniform slices are required. A special slicing tool called a **mandoline** (MAHN-duh-lihn) is sometimes used for very precise slicing. It has extremely sharp blades that can be adjusted to achieve precise cuts and thicknesses.

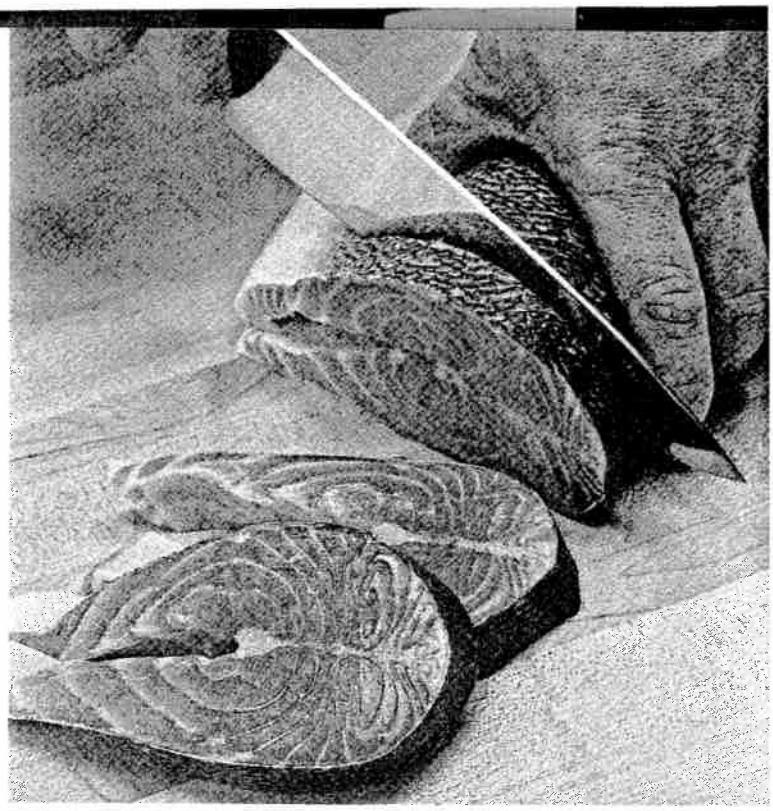
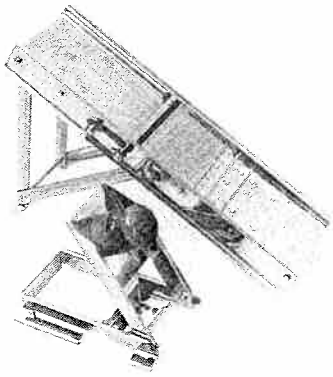


FIGURE 4-2
Slicing
The knife must be properly sharpened to slice correctly.
Predicting *Based on your experience, what happens when you try to cut with a dull blade?*

Chopping and Mincing Chopping usually refers to cutting food into pieces that are roughly but not exactly the same size. Although chopping is sometimes used interchangeably with the word "mincing," minced food is generally smaller than chopped food. To chop or mince, keep the tip of the knife in contact with the board and lower the knife firmly and rapidly, making repeated small cuts until you get the desired fineness.



Mandoline

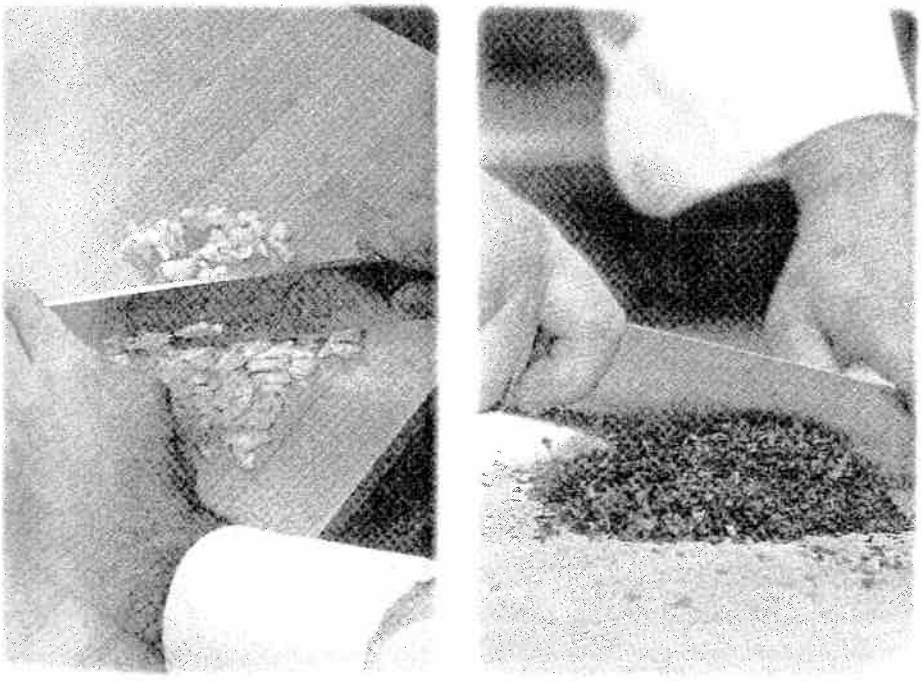
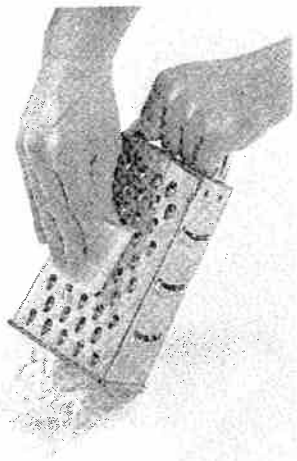


FIGURE 4-3
Chopping versus Mincing
Chopping (left) results in larger pieces than mincing (right).
Predicting *If you added chopped onions to a recipe calling for minced onions, how might the final dish be changed in taste and texture?*



Box grater

Shredding and Grating You can shred or grate items coarsely or finely. Some foods can easily be shredded with a chef's knife. However, other more specialized tools, including slicers, mandolines, and mixers or food processors (with attachments) can also be used, particularly if a large amount of shredded food is required.

Grating is often done with the grater attachments on food processors and mixers. You could also use a **box grater**, a special hand tool for grating. Specialized graters are available for specific tasks, such as grating nutmeg, cheese, or ginger.

Precision Cuts Precision cuts are used when nearly perfect uniformity is required. The ability to produce neat, even cuts shows your skill and craftsmanship. More importantly, it means food cooks evenly and retains the best possible flavor, nutrition, color, and appearance as it cooks. Some precision cuts are:

- **Rondelles.** Pronounced rahn-DELLS, **rondelles** is a French term meaning "rounds." The round shape is the result of cutting through any cylindrically shaped vegetable, such as a carrot or cucumber. To make rondelles, first trim and peel the vegetable. Then slice through the vegetable to make round pieces, or rondelles. Make sure each rondelle is the same thickness.

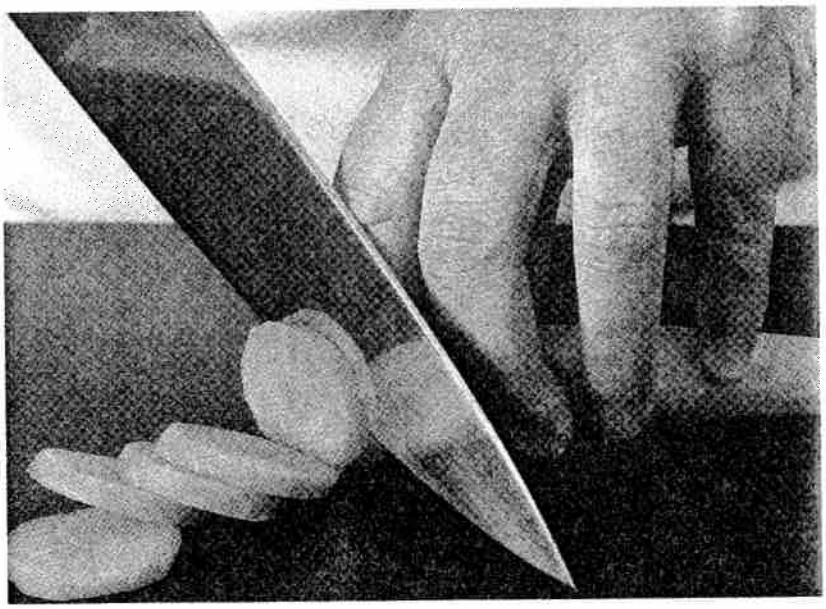


FIGURE 4-4
Rondelles
Slice through the vegetable to produce a rondelle.
Applying Concepts ***Why should each rondelle be the same width?***

- **Variations of Rondelles.** Rather than cutting straight down to make a rondelle, you can cut down diagonally to make a **diagonal cut.** This exposes a greater surface area of the vegetable and is often used for Asian-style dishes. Some variations on the rondelle cut, such as ripple and **gaufrette** (go-FRET) cuts, require special blades on a mandoline, food processor, or slicer.

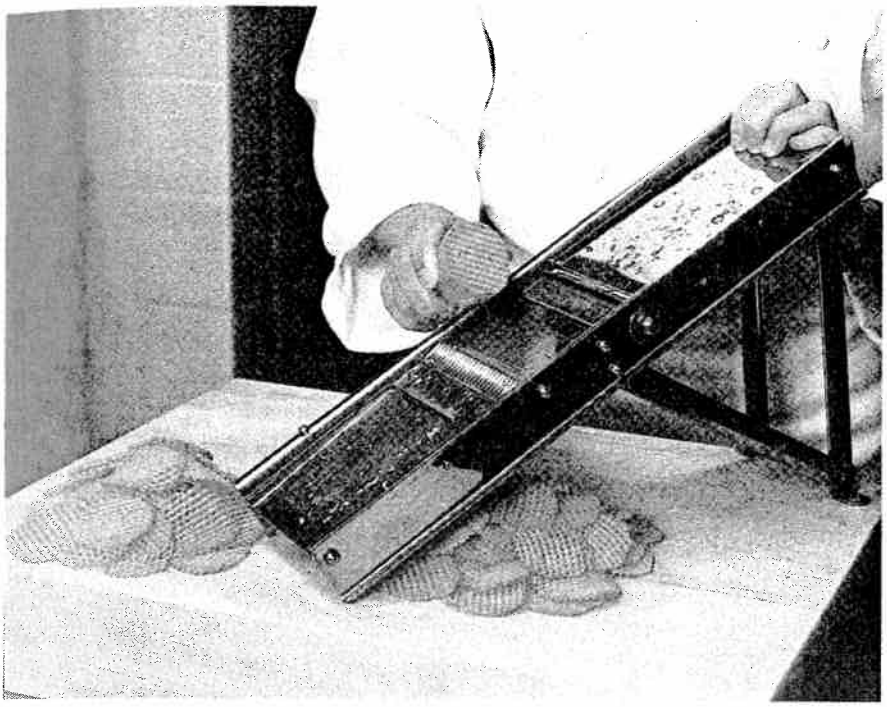


FIGURE 4-5
Using a Mandoline to Make a Gaufrette Cut
"Gaufrette" is French for "waffle."
Predicting *How do you think the taste and texture of a fried gaufrette potato would differ from a French fry?*

- **Chiffonade.** Used primarily to cut leafy greens and other ingredients into very fine shreds, the **chiffonade** (shiff-en-ODD) cut is done by hand. Chiffonade is different from shredding. The cuts are much finer and more uniform.

CHEF'S TIP

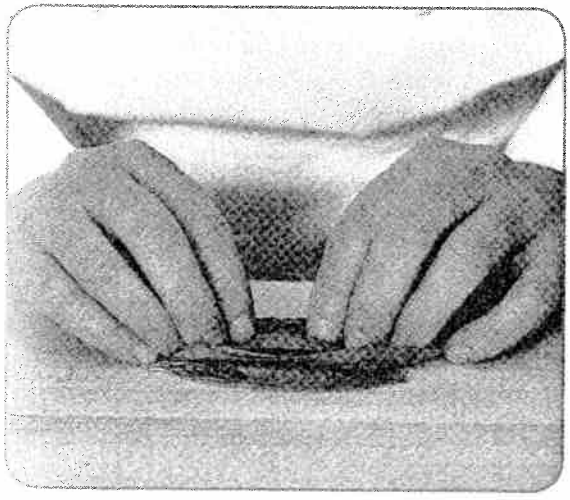
SHREDDING GREENS

When cutting tight heads of greens, such as lettuce or cabbage, cut the head into halves or quarters and remove the core before cutting shreds with a chef's knife.

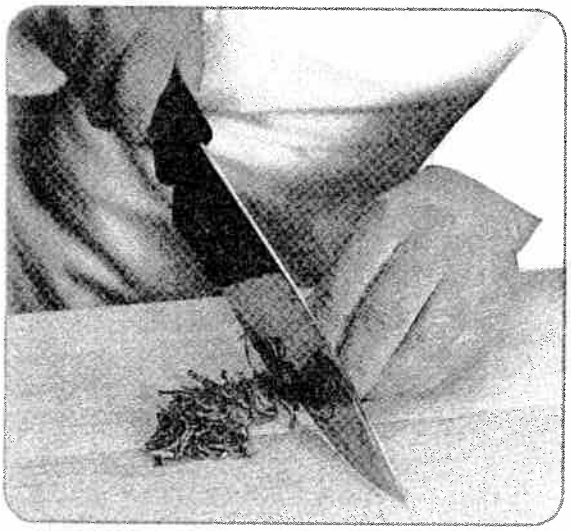
BASIC CULINARY SKILLS

Making a Chiffonade Cut

1. Remove stems, if stems are tough.
2. Stack several leaves on top of each other.
3. Roll tightly.



4. Slice the rolled leaves, using very narrow parallel cuts to produce fine shreds. Hold the rolled leaves tightly.

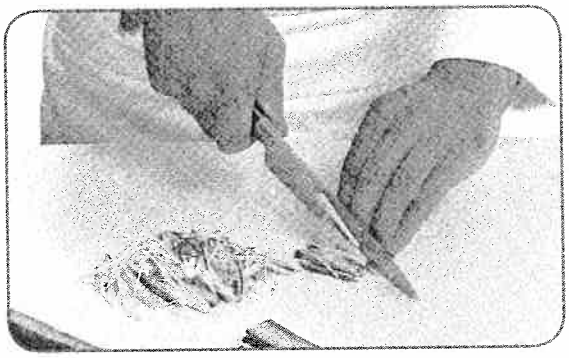


- **Julienne and Batonnet.** Both the **julienne** (JU-lee-ehn) and the **batonnet** (bah-tow-NAY) cuts are long, rectangular cuts that both showcase a chef's cutting skills and allow the vegetables to cook evenly. French fries are a type of julienne cut. Fine julienne cuts are about 1/16 inch thick, julienne cuts are about 1/8 inch thick, and batonnet cuts are about 1/4 inch thick.

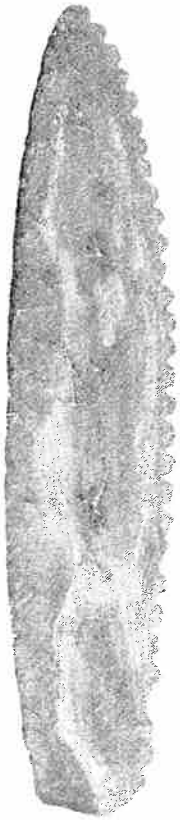
BASIC CULINARY SKILLS

Making Julienne & Batonnet Cuts

1. Trim vegetables so their sides are straight. This makes it easier to make even cuts.
2. Slice vegetables lengthwise, using parallel cuts of the proper thickness (1/8 inch for julienne, 1/4 inch for batonnet).
3. Stack the slices, aligning the edges.
4. Make parallel slices through the stack (1/8 inch apart for julienne, 1/4 inch for batonnet).



CULINARY HISTORY



The Oldest Tool Known to Man

Stone cutting tools unearthed in Kenya are believed to be nearly 3 million years old. They are considered the oldest man-made tools.

The first knives were made mainly from flint, a particularly hard stone.

Once humans learned mining skills, soft metals such as copper, lead, and gold were extracted from ore. Unfortunately, these soft metals did not make strong knives.

By about 3500 BC, copper was being melted with tin to form bronze. Iron was blended with the other metals to give items more strength and to resist rusting. Eventually, carbon was added and a metal known as carbon steel was developed. It resembled modern wrought iron.

At first, steel was used mainly for weapons. But by about 1500 AD, steel knives, forks, and spoons were used by wealthy people as cutlery. By the end of the 1800s, carbon steel of a consistent quality could be produced on a large scale. In the early 1900s, advancements in steel manufacturing made knives more durable and flexible—able to withstand the rigorous use of professional chefs today.

Research

Research the history of metals, paying particular attention to the development of carbon steel.

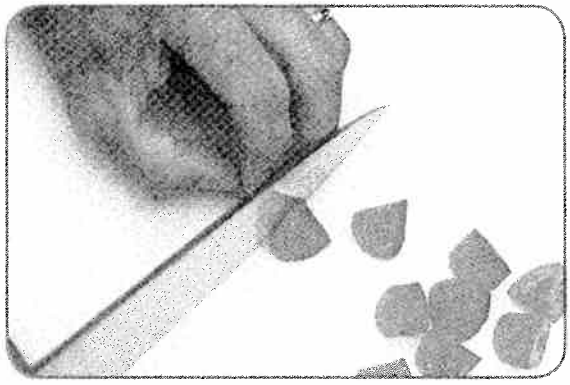
Stone Age knife with serrated edge

- **Oblique Cut.** The **oblique** (o-BLEEK) cut creates a piece in which the cut sides of a vegetable are neither parallel (side by side) nor perpendicular (at right angles). This effect is achieved by rolling the vegetable after each cut (which is why the cut is sometimes called a roll cut). This cut is used for long, cylindrical vegetables such as carrots. There are no specific dimensions for the oblique cut—the angle at which you choose to make the cuts is up to you, but the angle should be consistent with each piece.

Basic Culinary Skills

Making an Oblique Cut

1. Make a diagonal cut to remove the stem end of the peeled vegetable.
2. Roll the vegetable 90 degrees (a quarter-turn).
3. Slice the vegetable, using the same diagonal cut as you used in step 1, forming a piece with two angled edges.
4. Roll the vegetable 90 degrees and repeat the diagonal cut. Continue until the entire vegetable has been cut.

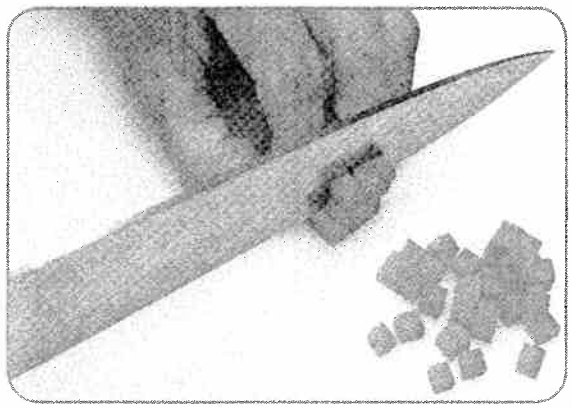


- **Dice.** When you cut a **dice**, you produce a cube-shaped piece of food. The smallest dice is called a **brunoise** (brewn-WHAZ), which means "to brown" in French. A brunoise is also known as a fine dice and is about ⅛-inch square. A fine brunoise is even smaller, only about 1/16-inch square.

Basic Culinary Skills

Dicing

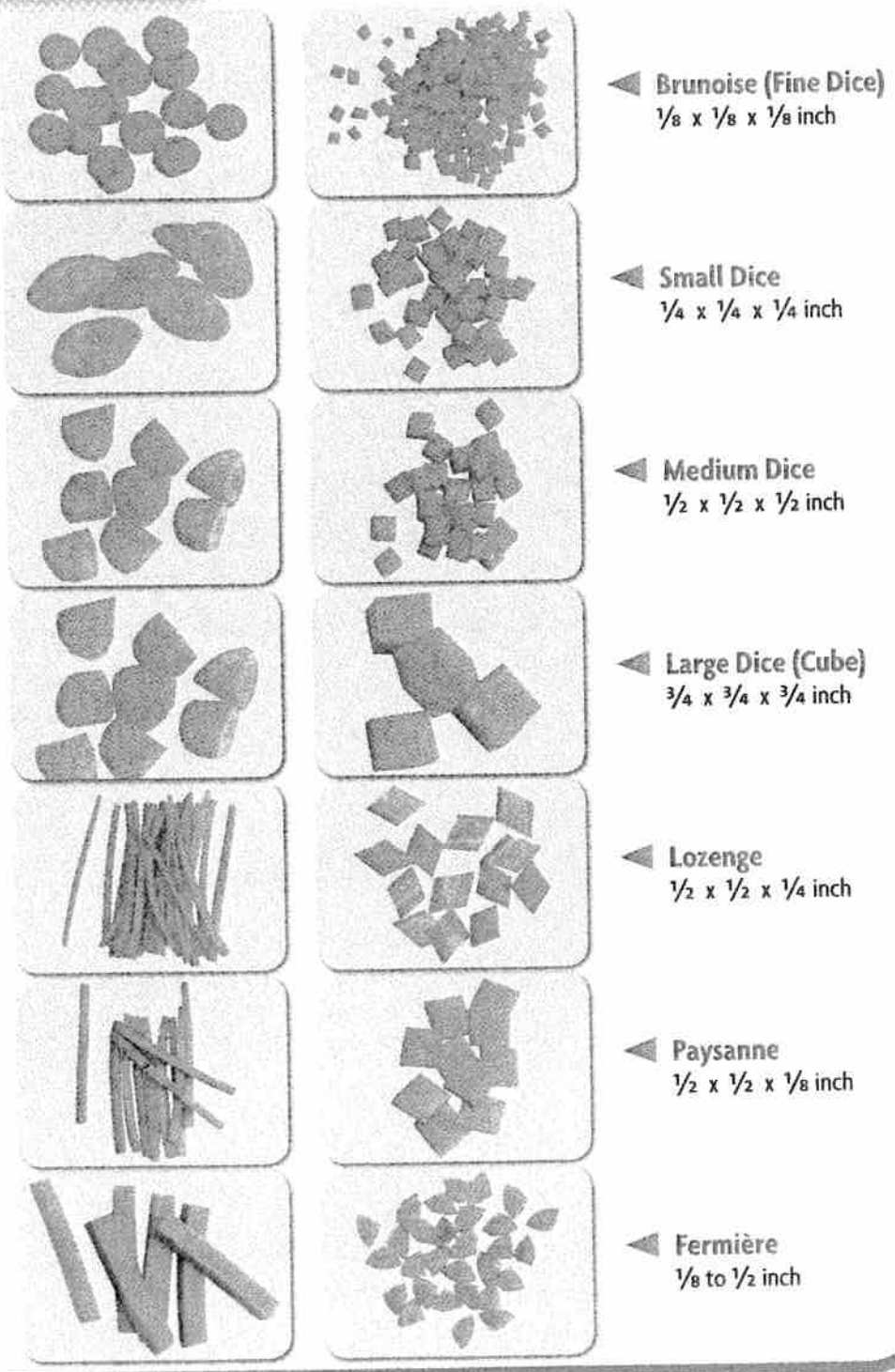
1. Trim and peel the food, if necessary.
2. Cut into slices. Make slices the thickness you want the finished dice to be.
3. Stack slices on top of each other.
4. Make parallel cuts of the same thickness as you used in step 2. This produces sticks.
5. Place sticks side-by-side.
6. Make parallel cuts across the sticks, holding them in place by using your guiding hand.



A medium dice is about ½-inch square, and a large dice, also called a **cube**, is at least ¾-inch square but can be larger.

- **Paysanne and Fermière.** These cuts are generally used in older, more traditional dishes, as can be seen in their names. **Paysanne** (pahy-SAHN) means "peasant" in French and

Sample Cuts



fermière (FARM-ee-air) means "farmer." A paysanne cut starts with a batonnet that is ½-inch thick. Cut the batonnet at ⅛-inch intervals so you have a flat ½-inch square that is only ⅛-inch thick. A fermière has a bit more rustic look. To make this cut, start with a batonnet that shows the curved or uneven edges of the vegetable. Cut the batonnet into pieces that are ⅛- to ½-inch thick.

- **Lozenge.** The **lozenge** (LOZ-enj) cut is a diamond-shaped cut that is most often used in garnishes. To make this cut, start with slices that are about ¼-inch thick. Cut the slices into strips about ½-inch wide. Holding your knife at an angle to the strip, make parallel cuts to produce a diamond shape.
- **Turned.** The turned cut is one of the most time-consuming cuts. It requires a series of precise cuts. The turned cut comes from the French verb tourner, meaning "to turn." Vegetables are cut into 2-inch pieces and are turned and cut so the end result is a football-like shape. Classic turned vegetables have seven sides, but the number of sides depends on the vegetables used. Turned vegetables can also have a flat bottom and only three or four curved sides.

Reading Checkpoint *What are the three basic cutting techniques?*

Maintaining Knives

The mark of professional chefs is the attention they give to their tools. They keep knife edges in top condition by honing the knives frequently as they work, sharpening them when needed, taking them to a knife-smith when an edge needs to be rebuilt, and storing them properly. No professional chef would ever drop a knife into a sink of dishwater or put a knife away dirty.

Sharpening Knives with a Stone You give a knife an edge by using a sharpening stone (also called a **whetstone**). Stones are used to sharpen the edge once it has grown dull through ordinary use.

Sharpening stones are available in a variety of sizes, textures, and materials—both natural and manufactured. The relative coarseness or fineness of the stone's material is referred to as its **grit**. Large stones—some with several sides and a well for lubricating oil—can accommodate large and heavy blades. Smaller stones are more difficult to use on longer knives but are easier to transport.

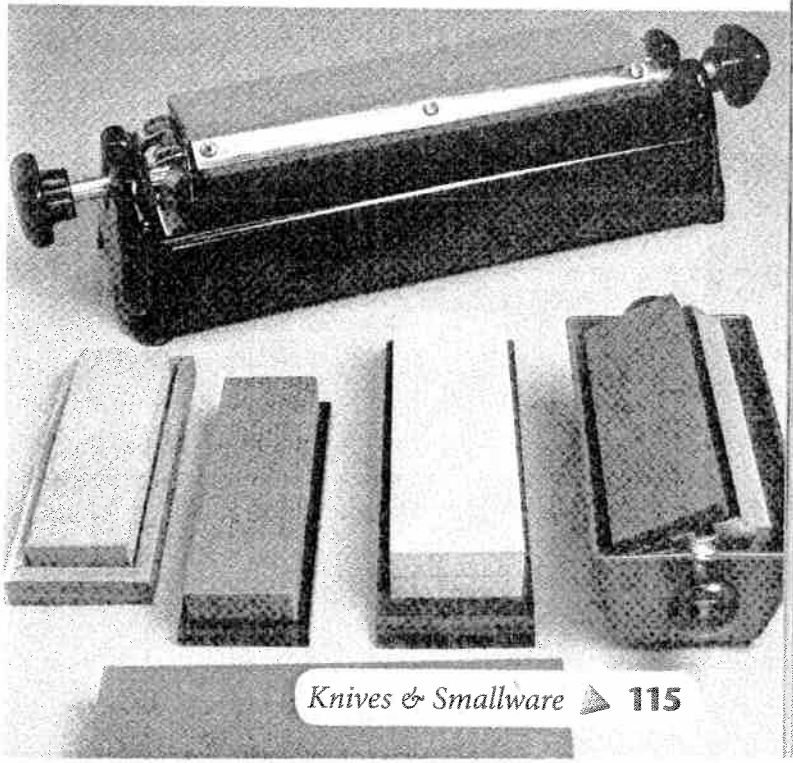


Figure 4-6
Sharpening Stones
A three-faced stone is mounted on a rotating frame. Other sharpening stones have different grits on each side.
Applying Concepts *When would a triple-faced stone be preferable to a two-faced stone?*

FOCUS ON SAFETY

Don't Slip!

Make sure your sharpening stone doesn't slip. Place carborundum or diamond stones on a dampened cloth or rubber mat. A triple-faced stone is mounted on a rotating frame that can be locked into position.

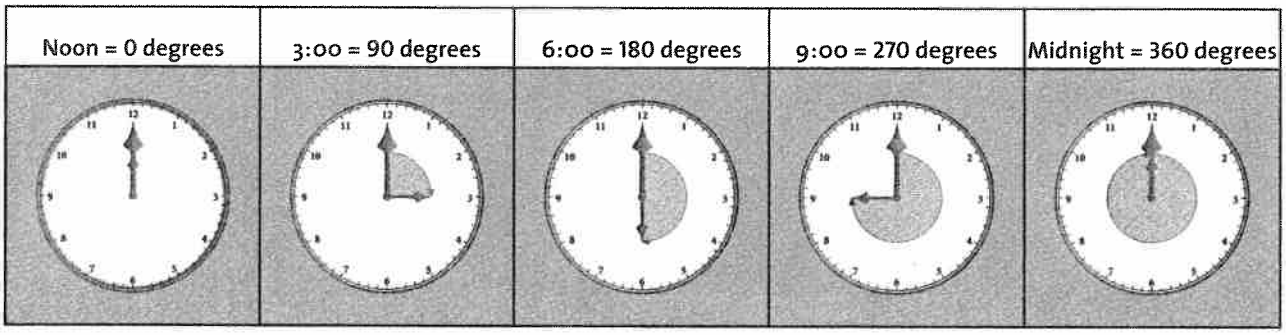
Some chefs believe a knife blade should be run over a stone from the heel to the tip; others believe it should be run over the stone from the tip to the heel. Similarly, some chefs prefer to use a lubricant such as mineral oil on their stones, while others swear by water. Whichever way you prefer to run the blade over the stone, it is important to be consistent in the direction of the stroke. Water or mineral oil helps reduce friction as you sharpen your knife. Be consistent in the type of lubricant you use.

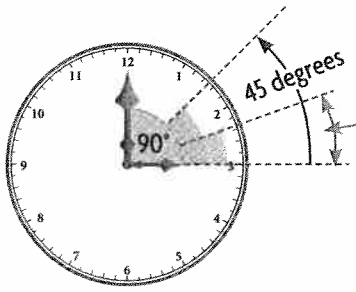
When using a sharpening stone, use a 20-degree angle for chef's knives and knives with similar blades. You may need to adjust the angle slightly to properly sharpen thinner blades, such as slicers, or thicker blades, such as cleavers.

CULINARY MATH

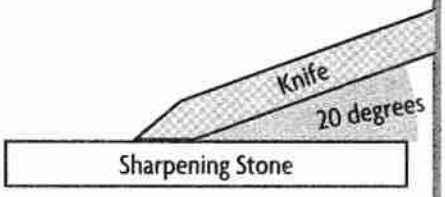
Measuring Angles

Angles are measured in degrees. Here's an easy way to remember an angle: think of a clock.





For a 20-degree angle, think of the distance about halfway between 0 and 45 degrees.



FOCUS ON SAFETY

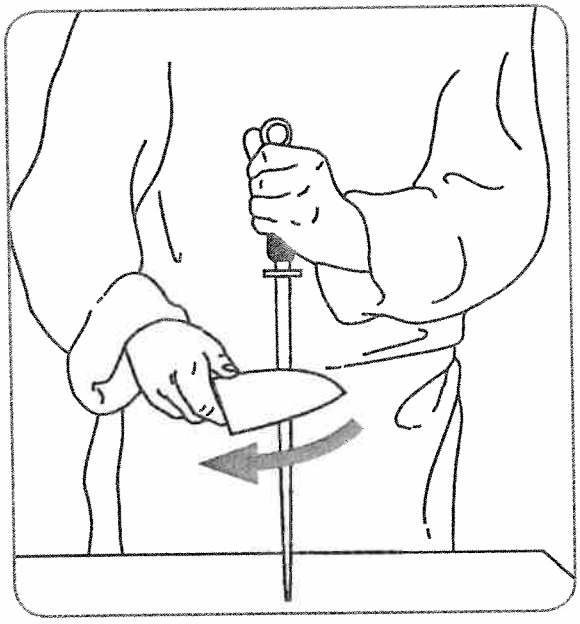
Washing Knives

Never put a knife in a sink when cleaning dishes. Someone reaching into the sink could be injured by the knife's blade.

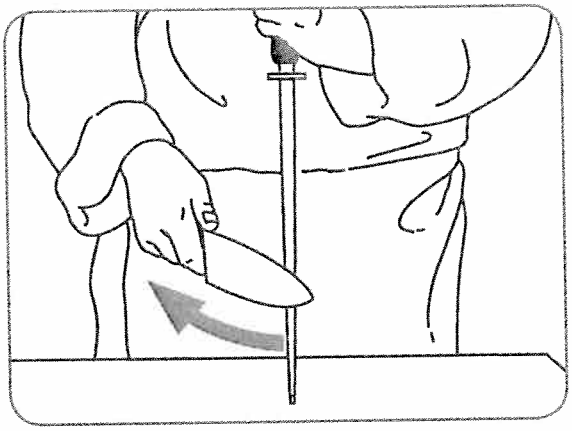
Honing Knives with a Steel Between sharpenings, you maintain a knife's edge with a steel. A **steel** is a textured steel or ceramic rod used to keep the blade straight and to smooth out irregularities. A steel is also known as a butcher's steel or a straightening steel. Steels are not used to sharpen a knife's edge. They are used to straighten the edge, because with use, the knife's edge starts to roll over to one side. The process of straightening the knife's edge is called **honing** or **trueing**. Good chefs are in the habit of using a steel before they start any cutting task, as they work, and again before they store their knives.

Honing a Knife

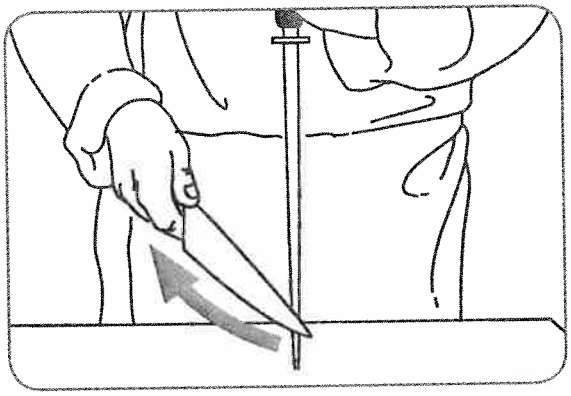
1. Hold the steel in a vertical position with the tip resting on a non-slippery surface.
2. Position the heel of the knife against one side of the steel, near the handle.



3. Draw the knife down the shaft of the steel and out from the steel so the entire knife blade, including the tip, is honed. Maintain light pressure and use an arm action, not a wrist action, to draw the knife smoothly down the steel.



4. Repeat a few times for the first side of the knife.
5. Repeat steps 2, 3, and 4 with the other side of the knife. Use the same number of strokes as you used on the first side.



6. Clean and sanitize the knife.

FOCUS ON SAFETY

Cutting Board Safety

To keep the board from slipping or rocking as your work, lay it on a clean, dampened towel or rubber mat. Working on a warped cutting board is dangerous because it cannot be kept stable.

- Knife guards or sheaths add an extra level of protection, especially when knives are stored loose in drawers.
- Choose a knife kit constructed of materials that are easy to clean and sanitize.
- Steel and rubber slotted holders are sanitary and can be washed and sanitized in the dishwasher.
- Mount slotted hangers on the wall, not on the side of a table where an exposed blade might be a safety hazard.
- Clean and sanitize sheaths, knife cases, and slotted knife holders often.

Maintaining the Cutting Surface Cutting boards should always be used when cutting foods. Cutting boards should be flat, with

a smooth surface. If they become chipped or gouged, they should be either resurfaced or replaced. Wipe the board frequently as you work to remove peels, trim, and other debris.

When you switch from one type of food to another (from chicken to lettuce, for example), you should clean, rinse, and sanitize the board. Today, many kitchens use color-coded boards to help prevent cross-contamination. (These were discused in section 1.2 of this text.)

If the cutting surface is a butcher block top or other large surface, first wipe down the entire surface with a scrub brush or scrubbing pad and a container of clean, soapy water. Using a scraper, lift away any residue. Wipe down the board carefully with a clean, damp cloth to remove any traces of soap. Finally, wipe down the entire surface with a clean cloth that has been wrung out in a sanitizing solution. To prevent sanitizing solution from becoming dirty too quickly, wipe down the board with a damp, clean cloth before swabbing with sanitizing solution.

FIGURE 4-7
Knife Kit
A knife kit is a safe and practical way to store and transport your knives.
Drawing Conclusions *Why might a chef be interested in transporting his or her knives?*

Reading Checkpoint

When is a sharpening stone used to maintain a knife?

4.1 ASSESSMENT

Reviewing Concepts

1. What are the main parts of a knife?
2. What are the eight basic types of knives and how are they used?
3. What are four ways the guiding hand is used in cutting with a knife?
4. What are the three basic cutting techniques? Describe each.
5. When is a sharpening stone used to maintain a knife? When is a steel used?

Critical Thinking

6. Drawing Conclusions Why do you think chefs tend to use a chef's knife more than any other kind of knife?
7. Comparing and Contrasting What is the difference between a julienne cut and a batonnet cut?
8. Inferring Do you think a professional chef would tend to own a triple-faced sharpening stone?

Test Kitchen

Slice, chop, and dice a carrot, using a chef's knife. Now cut the same size pieces by using a paring knife. What are the differences?

LANGUAGE ARTS

Pronouncing French Terms

Many terms in the culinary world are French. Team up with a student who knows French, if possible. Practice your pronunciation of the French terms from this section: chiffonade, rondelles, julienne, batonnet, paysanne, tournée, gaufrette, fermière, and brunoise. When you are satisfied with your pronunciation, define each term.