Knives and Cutlery

Unit: Culinary Arts

Problem Area: Culinary Vocabulary

Lesson: Knives and Cutlery

Student Learning Objectives.

Instruction in this lesson should result in students achieving the following objectives:

1. **Identify knife parts.**
2. **Identify knives and cutlery.**
3. **Demonstrate knife safety, maintenance, and storage standards.**

Resources.

The following resources may be useful in teaching this lesson:

"About Chef Knives," *New West KnifeWorks*. Accessed Sept. 12, 2010. <http://www.newwestknifeworks.com/Content/Information/About-Chef-Knives>.

Alfaro, Danilo. "The Anatomy of a Chef's Knife," *About.com: Culinary Arts*. Accessed Sept. 12, 2010. <http://culinaryarts.about.com/od/knivescutlery/ss/anat-knife_2.htm>.

Choi, Grace. "How to Hone a Knife," *Howcast*. Accessed Sept. 12, 2010. <http://www.howcast.com/videos/106-How-To-Hone-a-Knife>.

"Learn How to Sharpen a Knife by Hand," *Sharpening Supplies.com*. Accessed Sept. 12, 2010. <http://www.sharpeningsupplies.com/freehand-sharpening-video.aspx>.

McGreal, Michael J. *Culinary Arts: Principles and Applications*. American Technical, 2008.

Equipment, Tools, Supplies, and Facilities

- ✓ Overhead or PowerPoint projector
- ✓ Visual(s) from accompanying master(s)
- ✓ Copies of sample test, lab sheet(s), and/or other items designed for duplication
- ✓ Materials listed on duplicated items
- ✓ Computers with printers and Internet access
- ✓ Classroom resource and reference materials

Key Terms.

The following terms are presented in this lesson (shown in bold italics):

- blade
- bolster
- French/chef knife
- handle
- honing
- knife
- paring knife
- rivets
- sharpening steel
- tang
- whetstone

Interest Approach.

Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

> *Ask your students the following questions: What is the oldest tool made by humans? What, aside from a cookbook, is the most important kitchen hand tool? Discuss student answers. Then explain that knives are the oldest recorded human-made tools and the most important hand tool in the kitchen. Share the following information with your class.*

> *Sharp rocks have been found with the bones of prehistoric humans. Although knives have changed in appearance and material through the years, they still perform the same purpose: cutting raw and cooked foods. It is important for a chef to become skilled with knives for three reasons: safety, efficiency, and professional presentation. The care, maintenance, and storage of knives are exceptionally important to a working chef. A chef often purchases his or her own set of expensive knives and cares for them personally.*

CONTENT SUMMARY AND TEACHING STRATEGIES

Objective 1: Identify knife parts.

Anticipated Problem: What are the various parts of a knife?

I. Knife parts

A. A ***knife*** is a cutting instrument that consists of three main parts: a blade, a handle, and a tang. Depending on the knife type, other parts are rivets and a bolster. For most chefs, a basic knife kit contains a chef knife, a serrated knife, a paring knife, and a pair of kitchen shears. When selecting knives, chefs must consider the quality, comfort, and balance. It is important to understand the parts of the knife before making a purchase to ensure that quality characteristics are selected.

1. The ***blade*** is the part of the knife used for cutting foods. A knife blade is constructed from numerous materials. Some examples are stainless steel, high-carbon steel, high-carbon stainless steel, titanium, and ceramic. Most professional chefs use ceramic or high-carbon stainless steel. Good blades are tempered, annealed (a heating and slow cooling process in a furnace that makes the blade less brittle), and hand ground.
   a. High-carbon stainless steel blades combine the durability of stainless steel with the ease of sharpening attributed to high-carbon steel.
   b. Ceramic blades are made from a material called zirconia, and most are sharpened by a professional or are returned to the company for sharpening.
2. The ***handle*** (the haft) is the part of the knife held in the hand; it must feel comfortable to the user. The grip and good balance in the hand aid in knife safety and efficiency. The handle can be made of a variety of materials: plastic, wood, hard rubber, or various metals, especially stainless steel. Knives come in a variety of sizes and lengths, so finding the correct handle, grip, and total knife weight is important for safety, efficiency, and professional presentation. Knives with shiny plastic handles tend to attract grease and are not considered foodservice safe.
3. The ***tang*** is the part of the blade that extends into the handle. It is important to have a full tang in knives used for heavy cutting. There are full tangs, partial tangs, and rattail tangs. The name describes the amount of metal sandwiched inside the handle.
   a. A full tang is the same size, shape, and length as the handle. In a quality knife, the thickness of the blade is continued into the tang. Full-tang knives usually feel the most balanced in the hand.

b. A half tang is as wide as the handle, but it only extends halfway.
c. A rattail tang extends the length of the handle, but it is not as wide as the handle.

4. ***Rivets*** are metal pins or bolts used to fasten the tang to the handle. The rivets should be smooth and level with the handle. Rivets that protrude beyond the surface of the handle will eventually irritate the hand during prolonged use. If the rivets are countersunk into the handle, they will harbor debris and microorganisms. In general, the more rivets, the better. Some half-tang and rattail-tang knives use glue or gum to attach the tang to the handle. These knives should be avoided in the professional kitchen.
5. The ***bolster*** is the thicker, metal junction between the handle and the knife blade. It is usually the width of the handle to keep debris from entering the creases of the handle while in use. The bolster provides added strength and durability for heavy cutting. In addition, it serves as a counterbalance because the blade is heavier than the handle.

B. Cutting boards are necessary when working with a good knife. All boards can harbor bacteria, so careful attention to cleaning nicks and gouges is recommended. All cutting boards should be washed in hot soapy water after every use. Occasionally, it is necessary to soak the boards in a light chlorine and water solution and then to scrub them again, rinse, and finish by rubbing with vinegar or lemon juice to remove any chlorine odor. Color-coded cutting boards prevent cross-contamination. One coding system is as follows:

1. Beige—raw fish and shellfish
2. Red—raw meats
3. Blue—cooked foods
4. White—dairy products
5. Green—fruits and vegetables
6. Yellow—raw poultry

Teaching Strategy: *Use knives from your kitchen laboratory to review the parts of a knife: blade, handle, tang, rivets, and bolster. You may also want to use the Web sites listed in the "Resources" section. Use VM–A to review the color-coding system for cutting boards, or display laboratory examples.*

Objective 2: Identify knives and cutlery.

Anticipated Problem: What are the categories and types of knives and cutlery?

II. Knife and cutlery categories

A. Types of knives and cutlery fall into categories based on chef tasks. Constructing knives in various forms makes it easier for the chef to accomplish specific tasks. For example, it would be difficult to peel an apple with a 12-inch long knife blade.

Knife and cutlery categories vary depending on the source, but they include a minimum of the following:

1. Chopping and mincing
   a. French/chef
   b. Santoku
2. Butchering and boning
   a. Butcher
   b. Boning
   c. Cleaver
   d. Fillet
3. Slicing, paring, and cutting
   a. Paring
   b. Tourne
   c. Serrated
   d. Slicers (smooth or granton)
   e. Utility
4. Flexible blades (with rounded tips)
   a. Flexible and offset spatulas
   b. Sandwich spreaders

B. Knife descriptions

1. The ***French/chef knife*** is the most popular knife used in the professional kitchen. The blade ranges from 6 to 12 inches in length; it may be longer. A chef usually purchases the largest knife that feels comfortable. The knife is an investment and should be full tang.
   a. The blade is wide, slightly curved, rigid, and has a pointed tip.
   b. It can be used for chopping, mincing, and dicing (brunoise) with a rock-chop motion. It can also be used for some slicing, especially vegetables. Sometimes it is used for splitting poultry and lobsters or for mashing fresh ginger and garlic when turned on its side.
2. Santoku is a Japanese-style chef's knife similar to a French knife.
   a. The blade is thinner than a French knife, allowing the user to create thin, precise cuts. The edge may be tapered or may be a granton (hollow-ground ovoid shape).
   b. "San" is the Japanese word for three, and "toku" is the Japanese word for good things. It can be used for three good things: slicing (fermier—square cuts; paysanne—triangular cuts), dicing, and chopping.
3. A butcher knife is designed for cutting rather than chopping raw meats and poultry. Its handle is often curved or notched to give the user more leverage than a French knife.
   a. The blade is 15 to 19 inches, with a straight upper edge. It is curved at the tip.
   b. It is used for cutting apart roasts and poultry.

4. A boning knife is used to remove bones from red meats and poultry.
    a. A boning knife has a narrow 6- to 9-inch long blade that is rigid (for removing red meat bones) or flexible (for removing small bones from chickens, ducks, and quail).
    b. It is used for removing bones from red meat and poultry.
5. A cleaver knife is a heavy knife designed to perform heavy cutting, such as going through bones.
    a. It has a rectangular blade with a hole in the top. The hole in the top corner allows the knife to hang from a peg or a hook.
    b. It is used for splitting lobsters and poultry; for separating chops from a loin roast; and for mashing fresh ginger or garlic when turned on its side.
6. A fillet knife is a knife similar in shape to a boning knife, but it has a thinner, more flexible blade.
    a. The blade is thin and is 5 to 8 inches.
    b. It is used for removing skin and for deboning fish and poultry.
7. A ***paring knife*** is the second most used knife in the professional kitchen. It looks like a smaller version of a chef knife with a 3- to 4-inch blade. The paring knife is not considered an impact tool, such as the French knife. The shorter blade makes this knife feel more like an extension of the hand.
    a. The curve of a paring knife blade is not as pronounced as that of a chef's knife.
    b. It is used for peeling, cutting, and trimming foods—mostly fruits and vegetables. A paring knife can also be used for mincing herbs and for scoring hams and baked goods prior to baking or roasting.
8. A Tourne knife is a type of paring knife.
    a. It has a 3- to 4-inch curved blade (e.g., a bird's beak).
    b. It can be used to cut fruits and vegetables into rounded shapes. The knife can also be used to make a Tournée cut (turned into a round or ovoid shape) in vegetables.
9. A serrated knife is designed to cut through an outer crust and then to slice the inner, more fragile part of the food in a sawing motion.
    a. A serrated knife blade is 7 to 8 inches long and is saw-toothed (useful for some even-textured breads) or hollow-ground (useful for bread, tomatoes, and citrus). The saw-tooth variety cannot be sharpened.
    b. A serrated knife can be used for slicing breads, angel food cake, tomatoes, and some other fruits and vegetables. The blade is used in a sawing motion.
10. A slicer knife is designed to cut through cooked meats and is sometimes called a carving knife.
    a. The blade is thin, straight, and flexible. This knife typically has an 8- to 14-inch blade that is smooth or hollow-ground with oval voids or depressions in the blade to allow moist food items to be sliced without sticking to the blade, with a rounded or a pointed tip.

b. It can be used for carving cooked meats. A thin, flexible blade is good for slicing cold meats. A heavier and more rigid blade is used for soft, hot meats.

11. A utility knife is an all-purpose knife that is a bit smaller than a French knife and a bit larger than a paring knife.
    a. The blade is 4 to 7 inches long. Sometimes it is tapered, and sometimes it is serrated.
    b. It can be used for jobs too big for a paring knife and too small for a French knife: chopping, dicing, slicing, and peeling.
12. A flexible blade knife is thin, with a rounded tip.
    a. It has a long, thin, and flexible blade (4 to 10 inches); a sandwich spreader has a short 3- to 4-inch serrated blade.
    b. It can be used for icing cakes and desserts as well as with sandwich spreads and fillings.

C. Other cutlery
1. Clam and oyster knives
2. Cheese knife
3. Plastic salad knife
4. Grapefruit knife
5. French tomato knife (serrated)
6. Frozen food knife
7. Offset spatula (for lifting)
8. Meat saws
9. Meat fork
10. Steak knives
11. Dinner knives (place knives)
12. Electric knives

D. Sharpening and storage equipment
1. Knife storage blocks or cases
2. Whetstones
3. Carborundum stones
4. Sharpening steel
5. Zip-Zap ceramic sharpener
6. Sharpening oil

Teaching Strategy: *Use VM–B to review three categories of knives. Use the following Web site to review other types of knives and cutlery: http://www.newwestknifeworks.com/Content/Information/About-Chef-Knives.*

Objective 3: Demonstrate knife safety, maintenance, and storage standards.

Anticipated Problem: How can professional knives be safely maintained and stored?

III. Knife safety, maintenance, and storage

A. Knife safety

1. Knives are the most vital and expensive tools in a chef's arsenal. Knives can be very dangerous, so standard safety precautions should be exercised to prevent injuries.
2. Handling knives
   a. When a chef is using the handle grip, he or she must wrap all four fingers around the handle while placing the thumb on the spine (where the blade meets the handle). This is an excellent grip style for smaller hands.
   b. When a chef is using the blade grip, he or she must hold the back of the knife blade between the thumb and the forefinger; the other three fingers should wrap around the handle. This is an excellent grip style for larger hands.
3. Kitchen professionals should:
   a. Not engage in horseplay while handling knives
   b. Limit the amount of time walking with knives (When carried, knives should be angled slightly away from one's body with the tip pointed down.)
   c. Work with knives on a cutting board (Cutting on other surfaces can dull and damage the blade.)
   d. Keep knife handles completely on the cutting board (and not over the table edge) to prevent accidentally brushing a knife from the tabletop
   e. Let a falling knife fall (Attempting to catch a falling knife is exceptionally dangerous.)
   f. Be aware of the location of their hands and the knife at all times
   g. Work carefully
   h. Cut away from the body
   i. Keep the fingers of the hand that is not holding the knife curled underneath (Resting the knife blade against the second joint of the other hand helps steady the knife and the food. Maintaining the knife at a safe height prevents knuckle injuries.)
   j. Use knives or keep them properly stored
   k. Keep knives sharp (The most dangerous knife is a dull knife.)
   l. Wear cutting gloves (of chainmail) when necessary
   m. Clean knives immediately after use
   n. Avoid placing or storing knives in a sink between uses
   o. Hand someone a knife by placing the knife on a cutting board

B. Knife maintenance

1. Cleaning knives is the first step in proper knife maintenance. Knives should always be cleaned and sanitized before and after use. When knives are used for long periods, they should be cleaned periodically during use. This periodic cleaning helps ensure the minimal growth of bacteria.
2. Hand washing knives is recommended over dishwasher cleaning. Extreme temperatures and cleaning agents can dull knives and ruin the integrity of the handles.
3. Knives should never be placed in the sink. They should be placed on the sideboard and then washed, rinsed, sanitized, and allowed to dry.
4. Sharpening is a form of knife maintenance. Knives should be sharpened before, during, and after use. Dull knives require more force to go through the items being cut, making the tasks more dangerous. Sharp knives will effortlessly slice through items. A ***whetstone*** is a gritty 6- to 10-inch stone used to grind a sharp edge on a knife blade. Some have two or three sides, each with a different degree of grit to meet individual sharpening needs. The coarsest grit side should be used first, working down to the finest grit side. To sharpen a knife, it is necessary to:
    a. Place a dab of oil on the whetstone.
    b. Run the blade across the whetstone at a 20- to 25-degree angle (between 2 and 3 on an analog clock) from heel to tip; about 10 times on each side. This action should be repeated for the other one or two grit sides.
    c. Keep fingers on the middle point of the blade to make the draw smooth and steady across the whetstone.
    d. Sharpen each side of the knife equally.
    e. Use a sharpening steel to "true up" the blade.
5. A ***sharpening steel*** is a long steel rod with a handle and a hand guard or hilt used after sharpening to "true up" the blade's edge. The action of "trueing" is called honing and does not sharpen the blade, but hones it. ***Honing*** is aligning the blade and removing imperfections (or burrs).
    a. To hone a blade, it is necessary to use the same procedure as when sharpening the blade—heel to tip. The only difference is that the steel is held straight up (perpendicular to the cutting board) at a 90-degree angle.
    b. The blade is then run across the steel at a 20- to 25-degree angle for about four strokes on each side. After the knife is cleaned, it is ready for use.

C. Knife storage

1. When not in use, knives should always be stored in places such as the following:
    a. A knife block
    b. A knife case
    c. A knife organizer

2. Storage containers prevent injury to individuals.
3. Storage containers prevent knives from banging together, resulting in damage to the blades.

Teaching Strategy: *To teach basic knife safety, use a mock knife (constructed of a masonite blade and a wooden handle). With a mock knife, students can practice on almost any surface. Use a French knife to demonstrate proper chopping, slicing, dicing, and mincing techniques. Have students practice with the mock knife.*

Use VM–C to illustrate a whetstone and sharpening steel. Demonstrate the proper method to sharpen and hone a French knife. Have students watch the following videos: http://www.sharpeningsupplies.com/freehand-sharpening-video.aspx and http://www.howcast.com/videos/106-How-To-Hone-a-Knife. Assign LS–A.

Review/Summary.

Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Questions at the ends of chapters in the textbook may also be used.

Application.

Use the included visual master(s) and lab sheet(s) to apply the information presented in the lesson.

Evaluation.

Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activities. A sample written test is provided.

Answers to Sample Test:

Part One: Matching

1. g
2. e
3. b
4. a
5. f
6. c
7. d

Part Two: Short Answer

1. a. whetstone
   b. steel
2. Answers will vary but should include two of the following:
   a. Place a dab of oil on the whetstone.

b. Run the blade across the whetstone at a 20- to 25-degree angle (between 2 and 3 on an analog clock) from heel to tip; about 10 times on each side. Repeat this action for the other one or two grit sides.
c. Keep fingers on the middle point of the blade to make the draw smooth and steady across the whetstone.
d. Each side of the knife should be sharpened equally.

3. Answers will vary but should include five of the following knife safety standards:
   a. Do not engage in horseplay while handling knives.
   b. Limit the amount of time walking with knives. When carried, knives should be angled slightly away from one's body with the tip pointed down.
   c. Work with knives on a cutting board.
   d. Keep knife handles completely on the cutting board to prevent accidentally brushing a knife from the tabletop.
   e. Let a falling knife fall.
   f. Be aware of the location of your hands and the knife at all times.
   g. Work carefully. Speed comes with practice.
   h. Cut away from your body.
   i. Keep the fingers of the hand that is not holding the knife curled underneath. Resting the knife blade against the second joint of the other hand helps steady the knife and the food. Maintaining the knife at a safe height helps avoid knuckle injuries.
   j. Use knives or keep them properly stored.
   k. Keep knives sharp. The most dangerous knives are dull knives.
   l. Wear cutting gloves (of chainmail) when necessary.
   m. Clean knives immediately after use.
   n. Knives should not be placed or stored in a sink between uses.
   o. Hand someone a knife by placing it on a cutting board.

Part Three: Completion

1. honing
2. slicers
3. serrated
4. angle
5. cutting board
6. fillet
7. Santoku
8. utility
9. cleaver
10. French/chef

Sample Test

Name _____

Knives and Cutlery

Part One: Matching

Instructions: **Match the term with the correct definition.**

a. tang
b. handle
c. French/chef knife
d. blade
e. paring knife
f. bolster
g. rivets

_____1. Metal pins or bolts used to fasten the tang to the handle

_____2. The second most used knife in the professional kitchen

_____3. The part of the knife that is held in the hand of the user

_____4. The part of the blade that extends into the handle

_____5. The thicker, metal junction between the handle and the knife blade

_____6. The most popular knife used in the professional kitchen

_____7. The part of the knife used for cutting foods

Part Two: Short Answer

Instructions: **Answer the following.**

1. List two tools used to sharpen and hone a knife.

2. Identify two things to remember when sharpening a knife.

3. List five knife safety standards for using professional knives.

Part Three: Completion

Instructions: **Provide the word or words to complete the following statements.**

1. Aligning the blade and removing imperfections is called _____.
2. The knives designed to cut through or carve cooked meats are called _____.
3. The knife used to slice breads, angel food cake, tomatoes, and some other fruits and vegetables in a sawing motion is called a/an _____ knife.
4. It is important to hold the knife at the correct _____ when sharpening and honing.
5. When using a knife to cut any food items, it is important to use a _____ to protect the knife's edge and the work surface.
6. The knife used for removing skin and for deboning fish and poultry is called a/an _____.
7. The Japanese-style chef's knife similar to a French knife used to create thin, precise cuts is called a/an _____.
8. The all-purpose knife that is a bit smaller than a French knife and a bit larger than a paring knife is called a/an _____ knife.
9. The knife used to split lobsters and poultry and to separate chops from a loin roast is called a/an _____.
10. The knife used to chop, mince, and dice with a rock-chop motion is called a/an _____ knife.

COLOR-CODED CUTTING BOARDS

Color-coded cutting boards prevent cross-contamination.

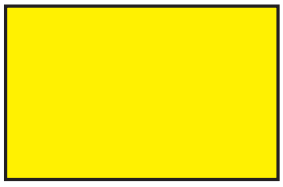
Beige—raw fish and shellfish

Red—raw meats

Blue—cooked foods

White—dairy products

Green—fruits and vegetables



Yellow—raw poultry

KNIFE CATEGORIES

Chopping and Mincing

French/Chef Knife

Santoku Knife (Japanese)

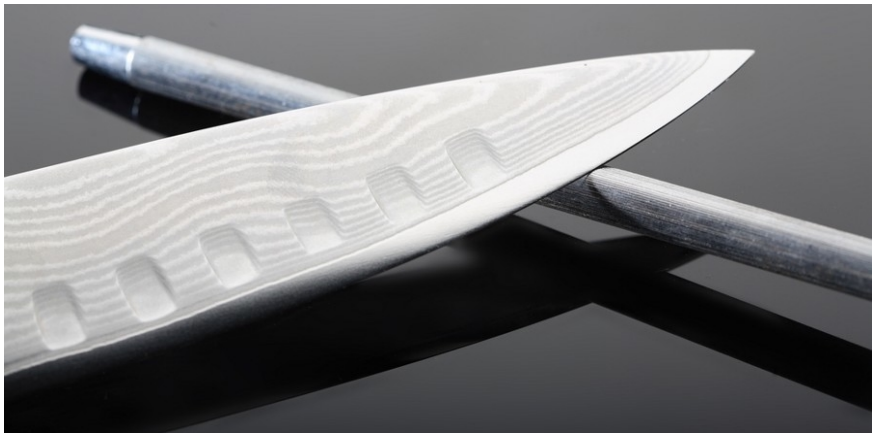
Butchering and Boning

Butcher Knife

Boning Knife

Slicing, Paring, and Cutting

Paring Knife



Granton Edge Slicer

Serrated Knife

Utility Knife

SHARPENING AND HONING

Whetstone

Sharpening Steel

Name _____

Proper Knife Care and Maintenance

Purpose

The purpose of this activity is to reinforce proper knife safety, maintenance, and storage.

Objectives

1. Identify knife safety standards.
2. Identify knife maintenance standards.
3. Identify knife storage standards.
4. Illustrate knife safety, maintenance, and storage.

Materials

- lab sheet
- colored pencils
- markers
- magazines from which to cut pictures
- scissors
- glue
- poster board

Procedure

1. Work in pairs.
2. Research and gather information on proper knife safety, maintenance (e.g., cleaning, sharpening, and honing), and storage.

3. Create an eye-catching and accurate poster, brochure, or other medium that illustrates professional knife standards. These illustrations will be posted in the lab. Materials that you may use are:

   a. Magazine pictures
   b. Hand drawings
   c. Computer-generated images

4. Use the checklist and point values below to ensure your illustration has all the required elements. You may receive a total of 41 possible points.

   a. 10 points—Knife safety standards (a minimum of five)
   b. 10 points—Knife maintenance standards (a minimum of five)
      (1) Cleaning standards
      (2) Sharpening standards
   c. 6 points—Knife storage standards (a minimum of three)
   d. 5 points—A visually appealing and neatly constructed display
   e. 10 points—Accurate information

5. Display your knife illustrations. Ask two other groups to rate your illustrations.

6. Turn in your completed illustrations to your instructor.