

Smallwares and Hand Tools

THINK OF ALL the tools and gadgets that fill the housewares department of a large store. Countless products and tools are designed for use in the kitchen. Some tools, such as knives, may be used for a variety of jobs. Other tools, such as an apple corer or a zester, serve a specific purpose. In this unit, you will learn about items used to hold food during preparation, cooking, holding, and storage.



Objective:



Identify basic smallwares and hand tools.

Key Terms:



bakeware
cookware
dry measures
hand tools
hygrometer

liquid measures
National Sanitation
Foundation (NSF)
portioning
smallwares

tare thumbscrew/button
thermometers
volume
weight

Understanding Smallwares and Hand Tools

SMALLWARES

Smallwares are glassware, flatware, dinnerware, pots and pans, table top items, bar supplies, food preparation utensils and tools, storage supplies, service items, and small appliances costing \$500 or less.

COOKWARE

Cookware is a collection of pots and pans used for stovetop cooking that range in size from large industrial to small individual. Pots and pans are used for various purposes, and some are used for specific tasks.

Pots

Pots usually have straight sides and handles at the top edge for carrying. Examples are stockpots, sauce pots, steamers, rondeaux, poachers, and double-boilers.

Stockpots

Stockpots are large, round, and deep pots with loop handles. They are used for simmering and boiling tasks. Most have snug-fitting covers, and some have racks to hold foods off the bottom of the pot.



FIGURE 1. Cookware is a collection of pots and pans used for stovetop cooking.

Sauce Pots

Sauce pots are large, round, medium-deep pots with loop handles. Sauce pots are preferable to stockpots when the products need to be stirred or whipped during cooking because the height of stockpots impedes these tasks.

Steamers

Steamers are pots with a basket insert that holds food items above boiling water to steam-cook food. These are frequently used for vegetables.

Rondeaux or Brazier Pots

Rondeaux or brazier pots are wide, shallow, heavy-bottomed pots, with straight sides and loop handles. They look similar in shape to short stockpots and have a close-fitting lid. Rondeaux are similar to Dutch ovens and are used to sear, braise, poach, pan-roast, fry, and stew foods—mainly meats.

Poachers

Poachers are used mainly for fish and are long, deep, and narrow pans that accommodate the shape of a fish.

Double-Boilers

Double-boilers have a lower section (similar to stockpots) in which water is simmered or boiled and an upper section holds food that must be cooked at temperatures below the boiling point. The upper pan rests on shoulders that suspend it above the boiling water. Covers are available for the upper pan. Double-boiler pots are often used in place of bain-maries.

Pans

Pans come in a variety of sizes and are used for multi-purpose stovetop cooking. Some have straight sides, and some have sloping sides. Saucepans are smaller than rondeaux and shallower and lighter than sauce pots. They have a long handle for lifting and generally have a cover.

Skillets and Fry Pans

Skillets and fry pans are heavy, flat-bottomed, shallow, and slightly sloping-walled pans that are a bit curved or flared. They hold heat well and have a long handle. Some large fry pans have a grab handle opposite the main handle. Skillets and fry pans are used for pan-broiling or frying.

Sauté Pans

Sauté pans (sauteuse) are small, round, and shallow pans with sloping sides for quick frying in a small amount of fat. They are similar to skillets, but they are designed for smaller amounts of food. They generally range in size from 5 to 11 inches in diameter.

Crêpe Pans

Crêpe pans are heavy; they hold and disperse heat evenly. The pans have a smooth surface and shallow, sloping sides. Pans designed for kitchen use are usually made of iron. Those designed for table service, in which a cook reheats a crêpe, are often copper or aluminum.

Grill Pans

Grill pans are frying pans that come in a variety of shapes with deep, parallel ridges on the surface that produce an attractive pattern on the meat, fish, or produce. Grill pans cook by radiant heat on stovetops. Cast iron grill pans hold heat well but are heavier than other materials. Some grill pans are designed with a moat to catch excess fat and drippings.

Woks

Woks have a rounded and concave bottom, a long handle, and often a grab handle. Woks provide excellent heat control and are made from rolled steel, aluminum, and stainless steel. They are used for stir-frying, deep-frying, steaming, braising, and stewing. Pans for gas stoves often have a ring-shaped stand for use on the burner. The basic hand tools for wok cookery are a long-handled spatula called a chahn and a ladle called a hoak.

BAKEWARE

Bakeware is equipment used in ovens or on steam tables to cook, warm, or steam foods. In general, bakeware is rectangular in shape, with straight sides and with or without loop handles. Bakeware pans include sheet, cake, roasting, specialty, and hotel pans.

Sheet and Bun Pans

Sheet pans and bun pans are rectangular, with shallow sides. They come in a variety of sizes. Bun pan silicone liners eliminate greasing and sticking, making cookie, bar, and cake removal easier. Full-sheet or bun pans are $18 \times 26 \times 1$ inch. Half-sheet pans are $13 \times 18 \times 1$ inch. Quarter-sheet pans are $9 \times 13 \times 1$ inch. Pizza pans also fall into this category and are typically round, but they vary in size.

Cake Layer Pans

Cake layer pans may range from 6 to 16 inches in diameter and 3 to 4 inches in height. Layer pans may be round or square and are used to bake butter and sponge cakes, as well as cinnamon rolls and upside-down cakes.

Jellyroll Pans

Jellyroll pans typically are $15 \times 10 \times 1$ inch in size. However, other sizes are available. They are used for sponge cakes, bars, and some sheet cakes.

Pie Pans

Pie pans are shallow, smooth-bottomed pans used with one- and two-crust pies. Flared or sloped sides are typical of American pies served from the pan. European bakers tend to use straight-sided tart pans or flan forms or rings. Pie pans commonly come in 9- or 10-inch diameters and are made of aluminum, ceramic, glass, or stainless steel. If pie shells will be pre-baked, it is best to use aluminum or anodized aluminum pans. Pie shells that are partially baked, filled, and then returned to the oven to finish baking should be placed in ceramic pans, which hold the heat longer than metal pans.

Tart Pans and Flan Rings

Tart pans are similar to pie pans and come in a variety of shapes and sizes, from individual sizes to large round pans. Flan rings and forms may be open rings, squares, or rectangles baked



FIGURE 2. A cake pan is a type of bakeware equipment.

on sheet pans. Fluted flan rings have removable bottoms to make removing the flan easier. Ceramic quiche molds also may be used for tarts.

Specialty Pans

Specialty pans create specific shapes from baked goods. Angel food or tube pans typically are 10 inches in diameter and hold approximately 12 cups of batter. Tube pans are used for angel and chiffon cakes and for certain butter cakes.

Springform Pans

Springform pans come in several sizes, most commonly 9 or 10 inches in diameter. Springform pans are especially useful when preparing cheesecakes or desserts in which you want the sides of the cake to be visible when it is served.

Muffin Frames

Muffin frames are available in a 12- or 24-cup size and are made of tin or aluminum. Standard-size round cups hold approximately 3.5 fluid ounces of batter each. Muffin frames are used to bake muffins, cupcakes, babas, and cinnamon rolls.

Loaf Pans

Loaf pans usually are 8, 9, or 10 inches long by 4 inches wide and 4 inches tall, with slightly flared sides. Individual or mini-loaf pans also are available. They are often tinned with rolled or folded edges and are available in glass, ceramic, aluminum, steel, and Pullman varieties. Loaf pans are used for yeast and quick breads, meatloaf, and pound cakes.

Specialty Pans

Other specialty pans are individual bundt, ladyfinger pans, madeleine tins, brioche molds, baba molds, tinned cornucopia molds, and savarin molds.

Roast Pans

Roast pans have deep sides, are 4 to 5 inches tall, and have loop handles. They also may have covers. Roast pans are intended to hold large pieces of meat.

Hotel Pans

Hotel pans, also called counter or service pans, are stainless steel with wide rims that fit standard steam table and salad bar openings. These pans are versatile. They may be used to cook or steam food and then be set directly on a serving line or used as transfer pans from the steamer or cold food station to the steam table or salad bar. These rectangular pans come in full, half, third, fourth, and eighth sizes to insert in steam tables or salad bars. Their depth is

variable. For example, salad toppings may be served in a shallow pan, while soup is served in a deep pan.

HAND TOOLS

Hand tools are items that are held and used to prepare and serve food. They are made from a variety of materials. Many manufacturers use colors and materials to make the items trendy. Hand tools are organized into the following categories: measuring, separating, turning and transferring, mixing, scraping, cutting, and specialty.

Tools for Measuring

Measuring devices are tools and utensils required for the accurate measurement of time, ingredient weight and/or volume, portion control, temperature, and humidity. Timers are used extensively in the commercial kitchen and are available in manual and digital types. Many pieces of equipment have a timer system embedded in the product, and most have a unique sound to differentiate which timer expired.

Scales

Scales are used to measure ingredients and foods by weight. They give measurements using the customary system, which uses ounces and pounds, or the metric system, which uses grams and kilograms. Ingredients and portions are more accurately measured by weight than by volume. Portion and digital scales have a tare feature that makes an allowance for a container that will hold the ingredient or food to be measured. For instance, if you place a bowl on the scale and then add flour, a normal scale will measure the combined weight of the bowl and flour. The **tare thumbscrew/button** is a device function that deducts the gross **weight** (heaviness) of the container from the weight of the ingredient. Other types of scales used in the commercial kitchen are:

- ◆ A baker's scale, which is a beam scale with twin platforms
- ◆ A portion scale, which is a food platform and a dial indicator
- ◆ A digital scale, which is an electric scale with a food platform and a digital readout
- ◆ A platform scale, which is a larger scale used in the receiving area of the kitchen



FIGURE 3. A portion scale has a food platform and a dial indicator.

Dry and Liquid Measures

Volume is the amount of space taken by a material. It is measured by liters in the metric system and by cups, pints, quarts, and gallons in the customary system. In commercial food services, measuring cups are used when measuring liquid or when accurate measurement is not a necessity. Measuring spoons are used to measure small ingredient amounts of dry and liquid forms.

Dry measures are round, handled, and calibrated in parts of a cup: $\frac{1}{4}$ -, $\frac{1}{3}$ -, $\frac{1}{2}$ -, and 1-cup sizes. They are used to measure dry or sticky ingredients. Dry measures are accurate when the measuring device is full and the ingredient is leveled.

Liquid measures are round, lipped, and side-handled in addition to being graduated in quarters (ounces and cups) and are primarily used to measure pourable ingredients. These measures are usually made of glass, plastic, or stainless steel and have capacities from 1 cup to 1 gallon.

There is a myth that all tablespoon measurements are equal. In *Gourmet Magazine*, chef John Willoughby said, "There is a wide variation in the volume of commercial tablespoons." Willoughby tested eight varieties of measuring spoon sets and found the average discrepancy between tablespoon measurements of table salt was 5 to 10 percent. If preparing a sauce or a soup, that percent difference may be unnoticeable. However, that difference would be significant in a yeast bread or cake. The average commercial tablespoon holds 20 grams of table salt.



UNDER INVESTIGATION...

LAB CONNECTION: Checking Measurements

You just learned that not all tablespoons are created equally. Reconstruct John Willoughby's experiment to determine the difference between at least four different types of measuring spoons. Use the spoons in your class lab, and borrow a few from friends and family members to make sure you have a variety. You will need the following materials:

- Four different tablespoons
- A digital scale
- Salt
- Paper
- A writing utensil

Using Spoon A, measure one level tablespoon of salt. Carefully place the salt on a digital scale to weight it. Write down the weight of the salt, in grams, for Spoon A. Repeat the procedure with each spoon, recording each of the weights on your paper. Then record any other observations you make. Which spoon measured the most accurately (closest to 20 grams)? Does one spoon look larger than the others? Do you think it makes a difference if the measuring spoon is made of metal or plastic?

Portioning

Portioning is distributing a food item into equal parts or serving an accurate amount of food using a tool for equal distribution. For example, you may cut a half-sheet cake into 24 equal pieces. Commercial portioning tools stamp the number of portions per quart, or an ounce equivalent, on some part of the device. For instance, ladles are metal bowls attached to long handles, with hooks to keep the ladles from slipping into the pots. Ladle size measurements are usually stamped somewhere on the tools and represent a level ladle. Ladles are used to portion soups, stews, and punch.

Scoops are bowls on sturdy handles that have a thumb-operated rotating vane to release semi-solid foods or to shape foods. Scoops are widely used to accurately portion cookies, muffins, soft salads, cold salad sandwich filling, and ice cream. Scoop size measurements represent a level dipper.

A rolling dough and bar cookie divider is a series of round 2-inch blades attached to an accordion-style handle, with a thumbscrew lock that allows the user to adjust the tool to the pan size. The divider or marking tool is used to divide raw dough into portions and to indicate cut marks for bars, cakes, and some pan salads and casseroles.

Pie markers resemble wheels with spokes for markers. Some have a handle in the center that marks pies for accurate portions; others have two loop handles on either side. Pie markers come in various sizes, but 6-, 7-, 8-, 10-, and 12-piece markers are most common.

Thermometers

Thermometers are devices that measure the surface and internal temperature of food products and the environment. The temperature is measured to ensure food safety is maintained. Regular calibration of thermometers is important in maintaining proper readings. Many pieces of commercial and home kitchen equipment (e.g., ovens and refrigerators) are fitted with thermostats designed to automatically measure temperature and regulate the air at the desired temperature. A room thermometer can measure the temperature of the air. Many types of thermometers are used in the commercial kitchen, including:

- ◆ Probe-type, which measures internal temperatures of food
- ◆ Infrared, which measures the surface temperature
- ◆ Hanging type, which measures the temperature in the oven, refrigerator, and freezer
- ◆ Candy
- ◆ Deep fat

Hygrometer

A **hygrometer** is a device that measures the amount of moisture or humidity in the air. It is especially important in dry and cold storage locations. If a refrigerator or freezer is too moist, food will spoil due to bacteria and mold growth. If the unit is too dry, foods will dry out.

Tools for Separating

Separation tools are used to wash produce, to separate liquids from solids in cooked or raw foods, and to remove lumps. A variety of separation tools exist, with different sized holes to perform specific duties in the kitchen.

- ◆ Strainers are used for draining cooked pasta and for all-purpose separation.
- ◆ Sieves have closely set air spaces for fine separation. They can be used to break down cooked foods into a puree by pressing the food through the sieve.
- ◆ Sifters remove lumps and add air to dry ingredients.
- ◆ Colanders are used to wash produce or strain bulky foods, such as shrimp and lobster.
- ◆ Skimmers are used to remove scum and floating particles from soups and stews.
- ◆ Food mills and Chinois are used to remove produce skin from flesh and to mash and puree foods.

Tools for Turning and Transferring

Turning and transferring tools are used to flip, scoop up, and move food items from one place to another. Examples are tongs, spatulas, turners, meat forks, ice scoops, and peels, which are wooden and metal tools used to place food in and remove food (e.g., pizza) from the oven.

Tools for Mixing

Mixing tools are used to blend ingredients together. They include paddles, spoons, whisks, pastry blenders, and eggbeaters. They often are made of wood, polyethylene, or stainless steel. Mixing bowls are typically made of glass or stainless steel.

Tools for Scraping

Scraping tools are used to remove ingredients from smallwares and surfaces. They include rubber spatulas, bench scrapers, dough cutters, bowl scrapers, and vegetable brushes.

Tools for Cutting

Cutting tools are used to cut, chop, dice, mince, slice, and grate food items and to protect work surfaces. Vegetable peelers slice the skin off fruits and vegetables. Graters and microplanes are hand-held tools that finely grate foods (e.g., peels and spices). Mandolins are tabletop equipment with interchangeable



FIGURE 4. Pizza cutters are categorized as cutting tools.

able blades to make thin, crinkled, and julienne cuts. Other examples of cutting tools are cheese slicers, kitchen shears, zesters, juicers, pizza cutters, and sandwich spreaders. Some tools have specific jobs (e.g., melon-ball cutters, corers, egg slicers, butter slicers, and a garlic press).

Cutting boards are tools used to protect the work surface. The polyethylene types are coded by color to prevent cross-contamination. For example, blue is used for raw fish and shellfish; red is used for raw meat; beige is used for cooked food; white is used for dairy; green is used for produce; and yellow is used for raw poultry.

Specialty Tools

Specialty tools are used for pastry and garde-manger preparations, among other tasks. Examples are rolling pins, pastry wheels, pastry brushes, pastry bags and tips, dough dockers, and funnels.

QUALITY CHARACTERISTICS

Consider safety, durability, and ease of use and care when choosing commercial kitchen smallwares and hand tools. The **National Sanitation Foundation (NSF)** is an organization that evaluates commercial kitchen equipment, smallwares, and hand tools to ensure they meet safety and sanitation standards in construction and installation. The NSF standards include:

- ◆ Coatings must be nontoxic and should not affect the foods that come in contact with the tool or equipment.
- ◆ All surfaces must be smooth.
- ◆ Tools and equipment must be easily cleaned.
- ◆ External and internal curves and corners must be rounded, smooth, and sealed.
- ◆ Debris must be easily cleaned from the tools and equipment.
- ◆ Coatings and surfaces must be chip and crack resistant.

Materials and some quality characteristics have changed over time. When cooking was accomplished over open wood fires, the tools reflected that medium. The introduction of smooth, nonporous, and nontoxic materials makes today's food production safer, more efficient, and more appealing to the eye and pallet. Smallwares and hand tools once were made from natural materials that were readily available (e.g., stone, handmade pottery, and wood). Most commercial kitchens now utilize equipment made from stainless steel, aluminum, polyethylene, and other durable plastics.

PROPER CARE

It is vital to clean and sanitize smallwares and hand tools to avoid the spread of bacteria and food-borne illnesses. Hand tools are difficult to clean and sanitize because they have many

small crevices, creases, and voids where debris may become stuck. Tools and equipment may look clean and still be covered with disease-causing bacteria, so sanitation is essential. Smallwares and hand tools eventually wear out or break, so it is important to replace them when signs of wear and tear are evident.

Cleaning and Sanitizing

To clean and sanitize smallwares and hand tools, begin by washing your hands. Then perform the following steps:

1. Scrape and rinse smallwares and hand tools. Soak any items with stuck-on or burned-on food.
2. Clean and sanitize the kitchen's three-compartment sink.
3. Fill the first sink with 110°F water. Add a dish detergent, according to the manufacturer's recommended amount per gallon of water.
4. Wash the items thoroughly with a brush in the prescribed order: glass, flatware, knives and hand tools, bowls and smallwares, bakeware, and cookware. Drain and refill wash water as needed.
5. Fill the second sink with 110°F water. Submerge each item to remove the detergent.
6. Fill the third sink with 180°F water and add a sanitizing agent, such as chlorine or iodine, following the manufacturer's directions. Submerge tools for at least 30 seconds to properly sanitize them.
7. Allow smallwares and hand tools to air dry. Drying towels can harbor bacteria and re-contaminate the tools.
8. Store smallwares and hand tools in designated areas to ensure sanitary conditions and easy access.

Commercial Kitchens

Commercial dishwashers use the same system for debris removal, washing, rinsing, and sanitizing tools.

Commercial kitchen smallwares and hand tools are able to withstand the extended use and abuse that comes with a professional kitchen's demands. They are well-constructed, with safety guards. They feel comfortable in the hand. In addition, they are easy to use, clean, and sanitize.

Summary:



Smallwares are glassware, flatware, dinnerware, pots and pans, table top items, bar supplies, food preparation utensils and tools, storage supplies, service items, and small appliances costing \$500 or less. Hand tools are items held and used to prepare

and serve food, including measuring cups, spatulas, scrapers, and knives. The National Sanitation Foundation is an organization that evaluates commercial kitchen equipment, smallwares, and hand tools to ensure they meet safety and sanitation standards in construction and installation. It is vital to clean and sanitize smallwares and hand tools to avoid the spread of bacteria and food-borne illnesses.

Checking Your Knowledge:



1. What are smallwares?
2. What is cookware?
3. What is a tare thumbscrew?
4. What types of ingredients are measured in dry measuring cups?
5. What is the National Sanitation Foundation?

Expanding Your Knowledge:



Check the equipment in your school's kitchen lab to see if it complies with National Sanitation Foundation standards. Examine the smallwares for smooth surfaces and round corners. Practice using them, and then evaluate how easily they can be cleaned and sanitized. Also check for any chips, cracks, or other signs of wear that may indicate the tool is no longer safe. Point out any defects to your teacher, and return the rest of the tools to their proper places.

Web Links:



National Sanitation Foundation

<http://www.nsf.org/>

Types of Cookware

<http://www.recipetips.com/kitchen-tips/t—586/types-of-cookware.asp>

Restaurant Kitchen Cleaning List

http://restaurants.about.com/od/restaurantkitchens/a/Clean_Kitchen.htm