

Pass the Taste Test ... Use a Thermometer!

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Home recipe directions often say to cook a food until “done.” What is “done?”

While we worry about cooking a food long enough for safety, we also should be concerned about cooking it too long to taste good. We can assure 100% safety if food is cooked until it tastes and looks like cardboard, a piece of shoe leather or a hockey puck — no one will eat it!

Webster’s dictionary defines “doneness” as “the condition of being cooked to the desired degree.” Besides a safe temperature, another aspect of “doneness” deals with subjective qualities such as the appearance, texture and optimum flavor of a food.

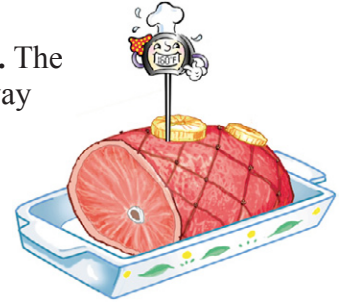
Using a food thermometer is the only way to accurately determine a safe internal temperature is reached.

Here are some temperature guidelines, using U.S. Department of Agriculture (USDA) and U.S. Food and Drug Administration (FDA) recommendations. These will help ensure cooking to a “doneness” that is both SAFE and GOOD-TASTING.

Inserting a Thermometer

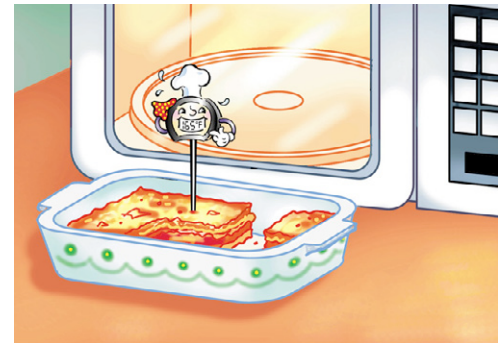
Insert thermometer in the center at the thickest part of the food away from bone, fat or gristle.

BEEF, PORK or LAMB ROASTS. The food thermometer should be placed midway in the roast, avoiding the bone. Irregularly shaped foods, such as beef roasts, should have their temperature checked in several places.



THINNER FOODS such as MEAT PATTIES, PORK CHOPS and CHICKEN BREASTS. An instant-read thermometer may be inserted sideways — if necessary — in the thickest part, away from bone, fat, or gristle. Insert so the entire sensing area is positioned through the center of the food. USDA encourages people to use digital instant-read thermometers for thinner foods — digital thermometers don’t need to be inserted as far as dial instant-read thermometers.

CASSEROLES and other COMBINATION DISHES. Place a thermometer into the thickest portion of the food or the center of the dish. Egg dishes and dishes containing ground meat and poultry should be checked in several places.



Check manufacturer’s instructions as to how far the thermometer must be inserted in a food to give an accurate reading. If instructions are not available, check the stem of the thermometer for an indentation or “dimple” that shows the end of the sensing device. The probe must be inserted the full length of the sensing area. For dial instant-read thermometers, this is usually 2 to 3 inches and less for digital instant-read thermometers.

Know how. Know now.

Common Food Thermometers

Some types of thermometers commonly used in the kitchen include:

Dial Oven-Safe (Bimetal)

Designed to stay in food during cooking. Insert 2 to 2-1/2 inches deep in the thickest part of the food, at the beginning of the cooking time. It remains there throughout cooking and is not appropriate for thin food.



Dial Instant-Read (Bimetal) Not designed to stay in food during cooking. Insert probe the full length of the sensing area, usually 2 to 2-1/2 inches. If measuring the temperature



of a thin food, such as a hamburger patty or boneless chicken breast, insert probe sideways with the sensing device in the center. About 15 to 20 seconds are required for the temperature to be accurately displayed.

Digital Instant-Read

(Thermistor) Not designed to stay in food during cooking. The heat sensing device is in the tip of the probe. Place the tip of the probe in the center of the thickest part of the food. About 10 seconds are required for the temperature to be accurately displayed.



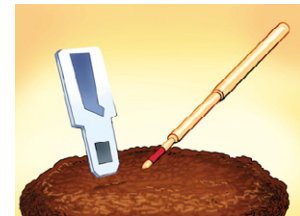
Oven Cord — Frequently used in foods such as roasts and turkeys during cooking in the oven. The base unit sits on stovetop or counter and the thermometer probe is placed in

the food. An advantage of this thermometer is the ease of tracking food temperatures while maintaining oven heat.



Disposable Temperature Indicators (Single-use)

— Designed to be used only once for a specific temperature range. Temperature-sensitive material changes color when the desired temperature is reached.



Should only be used with food for which they are intended. Place approximately 1/2" deep (follow manufacturer's directions). Reads in 5-10 seconds.

Tips for Using Thermometers at Home

- ✓ Use a clean thermometer that has been washed in hot soapy water and hot rinse water before and after use. Most thermometers should not be immersed in water — check manufacturer's directions.
- ✓ To prevent overcooking, begin checking the temperature toward the end of cooking but before the food is expected to be "done."
- ✓ Bacteria normally are found only on the external surface of larger cuts of meat like beef roasts and beef steaks. Beef roasts and beef steaks can be considered safe if cooked to 145° F in the center since the outside will reach a temperature high enough to kill bacteria on the surface. When foods are cooked to less than 160° F, wait until toward the end of the cooking period before inserting a thermometer. Otherwise, it is possible bacteria from the outside could be transmitted to the inside.

When meat is ground up, bacteria on the surface can get mixed throughout the meat. Mechanically tenderized meat has been punctured or injected, which can introduce bacteria into the center of the meat. Ground beef, veal, lamb, pork, bison and game meat must be cooked to an internal temperature of 160° F. Ground poultry must be cooked to an internal temperature of 165° F.

RECOMMENDED FOOD TEMPERATURES

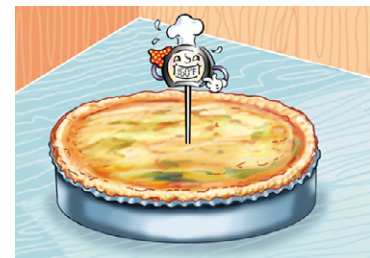
These temperatures are recommended by the U.S. Department of Agriculture and U.S. Food and Drug Administration for consumers. They are not intended for processing, institutional or foodservice preparation. Foodservice workers should consult their state or local food code, or health department.

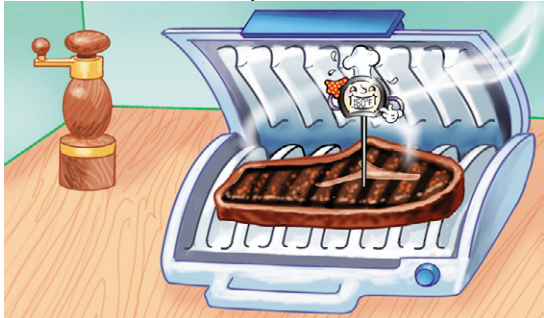
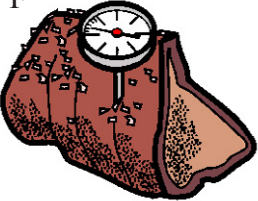
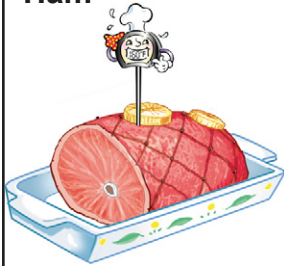
Never partially cook food for finishing later because this increases the risk of bacterial growth on the food. Bacteria are killed when foods reach a safe internal temperature. When preparing food in the oven, set the oven to at least 325° F.

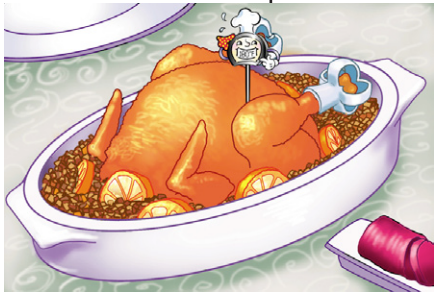
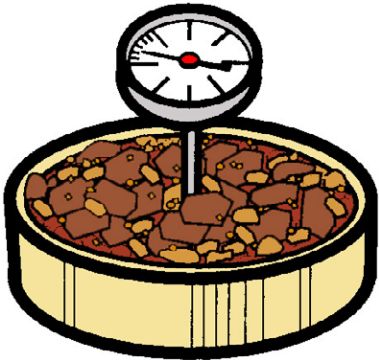
Celsius Conversion Table

32° F	=	0° C
140° F	=	60° C
145° F	=	63° C
160° F	=	71° C
165° F	=	74° C
170° F	=	77° C
180° F	=	82° C
325° F	=	163° C

FOOD	TEMP. (°F)	TIPS
Casseroles/Combination Dishes and Leftovers		
Casseroles/Combination Dishes and Leftovers	165° F	At this temperature, the food will be hot and steamy throughout, a measurement that can only be determined by a food thermometer. Thoroughly cook meat and poultry before combining with other ingredients in casseroles and combination dishes.
Eggs and Egg Dishes		
Eggs (poached, fried, scrambled and hard-cooked eggs)	160° F	It's difficult to insert a thermometer into these forms of eggs to measure if they've reached 160 F. It's necessary to rely on a visual indicator: Cook so both yolks and whites are firm, not runny.
Egg Dishes (soft stirred custard, baked custard, pumpkin pie, strata, quiche, bread pudding, hollandaise sauce, etc.)	160° F	At 160° F, eggs will be thick enough to coat a metal spoon with a thin film for soft stirred custards. For other egg dishes, such as quiche, a knife inserted near the center should come out clean.
Ground Meat and Poultry		
Ground Beef, Veal, Lamb, Pork, Bison and Game Meat (game meat includes deer, elk, moose, caribou, antelope and rabbits)	160° F	Cutting into cooked ground meat and using color as an indicator of safety is no longer considered reliable. Some ground meat may turn brown before it has reached a temperature that destroys bacteria. A hamburger cooked to 160° F, measured with a food thermometer throughout the patty, is safe regardless of color. Hamburger patties are a common ground meat food. A 1/2 inch thick ground beef patty is more likely to cook thoroughly in the middle without being overdone on the outside than one that is too thick. A pound of beef, before cooking, yields 4 patties measuring approximately 1/2" by 4."
Ground Poultry (turkey and chicken)	165° F	Ground poultry is cooked 5 degrees higher than ground beef, veal, lamb and pork.



FOOD	TEMPERATURE	TIPS
Hot Dogs, Luncheon Meats, Cold Cuts, Fermented and Dry Sausage, and other Deli-Style Meat and Poultry Products		
Hot Dogs	165° F	Although all hot dogs are fully cooked, always reheat before eating. Use a food thermometer to make sure hot dogs reach 165 °F or are steamy hot throughout.
Luncheon Meats, Cold Cuts, Fermented and Dry Sausage, and Other Deli-Style Meat and Poultry Products	Heat these ready-to-eat foods until steamy hot throughout to help protect susceptible populations from listeriosis (see right).	<p>People at risk for listeriosis include: pregnant women and newborns, older adults, and people with weakened immune systems caused by cancer treatments, AIDS, diabetes, kidney disease, etc.</p> <p>Although these foods are fully cooked, they can become contaminated with <i>Listeria monocytogenes</i>. Heat these foods until they are steamy hot throughout.</p>
Large Cuts of Beef, Veal, Lamb, Bison		
Large Cuts of Beef, Veal and Lamb: Roasts and Steaks	145° F - medium rare 160° F - medium 170° F - well done 160° F - all rolled, tenderized or scored meats.	<p>CAUTION: Do not serve any rolled, tenderized or scored large cuts of beef, veal or lamb below 160° F. The process of cutting or puncturing meats before cooking may force any surface bacteria into the center. When in doubt as to how a piece of meat has been handled, cook to 160° F.</p> <p>Large cuts of beef, veal or lamb — like roasts and steaks — can stay slightly pink in the center if they have reached at least 145° F. Beef roasts cooked to 160° F will generally have very little pinkness to the meat, and the juices will not be pink or red.</p> <p>A consumer would not be able to determine if a roast that was pink in the center had reached 145° F without a food thermometer.</p>
		
Pork		
Pork Chops and Roasts	160° F	<p>Pork chops may have just a trace of pink color at this temperature. Pork roasts are safe when cooked to 160° F even though the center of the roast may be somewhat pink. A consumer would not be able to determine visually if a pork roast that was pink in the center had reached a safe temperature.</p>
		
Ham	160° F - purchased “fresh” or described as “cook-before-eating” 140° F - purchased fully cooked 165° F - reheated or repackaged	<p>Both vacuum-packaged fully cooked hams and canned hams can be eaten cold just as they come from their packaging. However, if you want to heat these fully cooked hams, set the oven no lower than 325° F and heat to an internal temperature of 140° F.</p> <p>For fully cooked ham that has been repackaged from its original manufacturer’s packaging or for leftover fully cooked ham, heat to 165° F for greatest safety.</p>
		

FOOD	TEMPERATURE	TIPS
Poultry		
Chicken, Turkey, Duck and Goose	165° F 	<p>When cooking whole poultry, the food thermometer should be inserted into the thickest part of the thigh (avoiding the bone).</p> <p>If cooking poultry parts, insert food thermometer into the thickest area, avoiding the bone. The food thermometer may be inserted sideways, if necessary. When the food is irregularly shaped, the temperature should be checked in several places.</p>
Stuffing	165° F - in casserole or in turkey 	<p>CAUTION: The safest way to cook stuffing is in a casserole in a 325° F oven. The internal temperature of the stuffing must reach 165° F.</p> <p>Today's turkeys cook faster than in the past as they now are bred to have a greater portion of breast meat that cooks faster than dark meat. If you stuff your bird, you take the chance of your turkey becoming overdone before your stuffing has reached a safe temperature.</p> <p>The ingredients for the stuffing can be prepared ahead of time. Keep wet and dry ingredients separated and chilled. Mix wet and dry ingredients just before putting stuffing into a casserole or filling the turkey cavity. If you choose to stuff your turkey, make sure it is stuffed loosely. The stuffing should be moist, not dry, since heat destroys bacteria more rapidly in a moist environment.</p> <p>Cook a turkey immediately after stuffing it. Check the temperature in the center of the stuffing. Even if the turkey has reached a safe internal temperature of 165° F, the center of the stuffing inside may not have reached 165° F and can cause food-borne illness. BOTH temperatures of 165° F for the turkey and the stuffing must be met.</p>
Seafood		
Fin Fish	<p><i>The FDA 2009 Food Code recommends cooking most seafood to an internal temperature of 145° F for 15 seconds. When using the microwave, rotate the dish several times to ensure even cooking. Follow recommended standing times. After standing time is completed, check seafood in several spots with a meat thermometer to be sure the product has reached the proper temperature.</i></p>	<p>When you slip the point of a sharp knife into the flesh and pull aside, the edges should be opaque and the center slightly translucent with flakes beginning to separate. Let the fish stand three to four minutes to finish cooking.</p>
Shrimp, Lobsters and Crab		<p>Should turn red and the flesh should become pearly opaque.</p>
Scallops		<p>Should turn milky white or opaque and firm.</p>
Clams, Mussels & Oysters		<p>Watch for the point at which their shells open. That means they're done. Throw out those that stay closed.</p>

Calibrating a Thermometer

To assure the accuracy of a thermometer, check — and adjust if necessary — by comparing its temperature reading with the temperature of a known standard. This process is called calibrating a thermometer.

How often a thermometer is calibrated will depend on use. Calibrate a thermometer whenever it is dropped and when first purchased. If a thermometer is used frequently, calibrate it weekly or monthly. On the other hand, if it has been several months since it has been used, calibrate it before use.

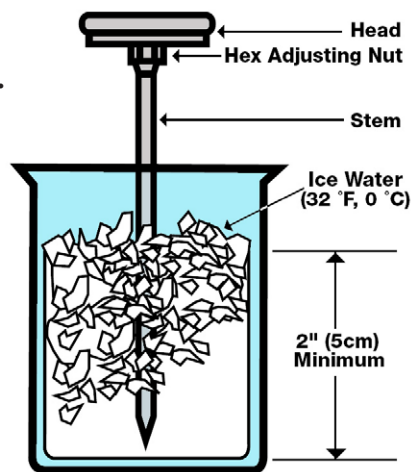
Some thermometers can be calibrated by turning an adjusting nut under the head of the thermometer. Check manufacturer's instructions. The easiest way to calibrate a thermometer is with the ice water method.

Even if a food thermometer can't be calibrated, it should still be checked for accuracy, as described in the ice water method. Any inaccuracies can be taken into consideration when using that food thermometer, or the food thermometer can be replaced.

For example, if a thermometer is checked by the ice water method and reads 34° F instead of the recommended 32° F, it is reading 2 degrees too high and 2 degrees would need to be ADDED to final cooking temperatures.

Ice Water Method

1. Fill a large glass with finely crushed ice.
2. Add clean tap water to the top of the ice and stir well.
3. Immerse the food thermometer stem a minimum of 2 inches into the mixture, touching neither the sides nor the bottom of the glass. Wait a minimum of 30 seconds before adjusting. TIP: For ease in handling, the stem of the food thermometer can be placed through the clip section of the stem sheath and, holding the the sheath horizontally, lowered into the water.
4. Without removing the stem from the ice, hold the adjusting nut under the head of the thermometer with a suitable tool and turn the head so the pointer reads 32° F.



Resources:

- FDA. Food Code 2009. <http://www.fda.gov/Food/FoodSafety/RetailFoodProtection/FoodCode/FoodCode2009> (Accessed June 25, 2010).
- USDA. Kitchen Thermometers. http://www.fsis.usda.gov/factsheets/Kitchen_Thermometers/index.asp (Accessed June 25, 2010).
- USDA. Is It Done Yet? http://www.fsis.usda.gov/is_it_done_yet/brochure_text/index.asp (Accessed June 25, 2010).
- USDA. Be Food Safe. http://www.fsis.usda.gov/Be_FoodSafe/index.asp (Accessed June 25, 2010).
- USDA. Thermy. http://origin-www.fsis.usda.gov/Food_Safety_Education/Food_Thermometer_Research/index.asp (Accessed June 25, 2010).
- USDA. Food thermometers are key to food safety. http://origin-www.fsis.usda.gov/PDF/Thermometers_Are_Key_FactSheet.pdf (Accessed June 25, 2010).

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