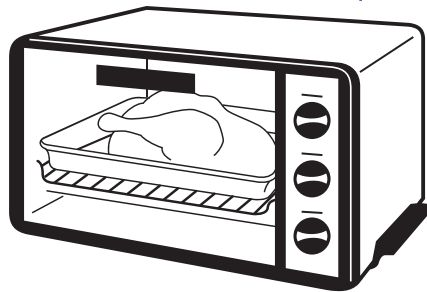


# YOUR MICROWAVE OVEN: a real time saver

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A microwave oven can be a real time saver by reducing the amount of time it takes to prepare a meal. The microwave oven cooks food faster than a conventional oven by using short, high-frequency energy waves similar to TV, radar and radio waves. These waves are created by a magnetron, a part of your microwave oven. These waves cause molecules inside the food to move rapidly and create heat. It is this heat that cooks the food.

Magnetron tubes have different power outputs: 500-600 watts, 600-750 watts and



700-900 watts. Some commercial microwaves have power outputs at greater than 1,000 watts.

The power wattage will vary according to the power load on the line at different times and whether other appliances are plugged into the same circuit.

The recipes in the cookbook that came with your microwave were written specifically for the power wattage of your microwave. Other microwave recipes are generally written for 600-700 power wattage.

## General Tips for Cooking in the Microwave

The following are general tips for cooking in the microwave:

Here is a test you can use at home to determine the approximate power of your home microwave.

- Use a 4-cup glass measuring cup and fill it with 34 ounces (1 liter or 4 1/4 cups) of cool water.
- Use a thermometer to measure the temperature of the water.
- Record the temperature of the water.
- Place the cup of water in the center of the microwave oven.
- Heat the water at the highest setting for two minutes.
- Stir the water with the thermometer and record the temperature.
- Subtract the first temperature from the second temperature reading.
- Multiply the difference by 19.5. The number obtained is the approximate wattage of the oven.

- Since microwaves enter the food to a limited depth, the food should be arranged so the waves can strike it from all sides. If there are a number of pieces to cook at once, arrange the pieces in a circle to create more outside pieces. **Do not group pieces in a pile.** Longer cooking time would be necessary and would probably overcook the outer portions of the food.

- Uniform sizes and shapes heat more evenly. To compensate for irregular shapes, place thin pieces toward the center of the dish and thicker pieces toward the edge of the dish.

- Bone and fat affect heating. Bones may cause irregular cooking. Large amounts of fat absorb microwave energy, and meat next to these areas may become overcooked.

- Foods at room temperature take less time to cook than foods at refrigerator temperature or frozen foods.

- Meats and poultry cooked for 10 to 15 minutes brown from their own fat. Foods cooked for shorter periods can be browned using Worcestershire sauce or soy sauce. Simply brush one of these sauces over the meat or poultry before cooking.



Baked goods do not need a long cooking time and, therefore, do not brown.

When cakes or cupcakes are frosted, no one will notice this visual difference. For quick breads or muffins, use brown sugar instead of granulated

sugar or, before baking, sprinkle the surface with dark spices or brown sugar.

- Moisture evaporates during conventional or microwave cooking. A cover on the container helps reduce moisture loss. A casserole lid or plastic wrap can be used for a tighter seal and will help retain the greatest amount of heat and moisture. These covers are sometimes used with vegetable dishes, when it is important to retain moisture. Wax paper placed loosely over the food retains moisture, prevents splattering and heat loss, but allows excess moisture to escape.

- Plastic wraps should not touch the food and a small opening should be left at one corner to prevent steam from building up.

#### Tips for releasing steam:

**Eggs** — Pierce egg yolk twice and egg white several times with a toothpick.

**Whole clams and oysters** — Pierce several times with a toothpick.

**Whole potatoes and vegetables** — Pierce with a fork.

**Whole apples and new potatoes** — Peel off 1-inch strip of skin before cooking.

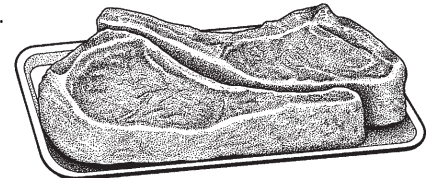
**Frankfurters and sausages** — Score smoked Polish sausage and frankfurters. Pierce fresh sausage or brown-and-serve.

- The skin or membranes on some foods will cause steam to build up during microwave cooking and the food may burst. To prevent this from happening, pierce, score (notches cut into it) or peel off a small strip of skin before cooking to allow steam to escape.

- Stirring is usually necessary during microwave cooking. The words “once,” “twice,” “frequently” or “occasionally” describe the amount of stirring necessary. When stirring, bring the cooked outside edges toward the center and the less cooked center portions toward the outside.

- Some foods, such as large cuts of meat, cannot be stirred to redistribute heat.

To help insure even cooking, these foods need to be turned or rearranged. Gener-



ally, they are turned once, halfway through cooking. To rearrange small items such as chicken pieces, shrimp, hamburger patties or pork chops, move pieces from the *edge to the center* and pieces from the *center to the edge* of the dish.

- Cooking time is given as a time range, such as “cook 10 to 12 minutes.” Always cook food for the **minimum** cooking time given and check for doneness. If the food is undercooked, continue cooking. You can add time to an undercooked product, but once the food is overcooked, nothing can be done.

- Most foods will continue to cook after the microwave oven is turned off. When cooking meat, the internal temperature of the meat will raise 5° F to 15° F if allowed to stand covered for 10 to 15 minutes. Casseroles and vegetables need a shorter amount of standing time. However, standing time is necessary to allow foods to complete cooking in the center without overcooking on the edges.

- The same test for doneness used in conventional cooking may be used for microwave cooking.

### Tips for judging doneness:

**Cakes** are done when a toothpick comes out clean (no batter stuck to it) and cake pulls away from the side of the pan.

**Meat** is done when fork-tender or splits at fibers.

**Chicken** is done when juices are clear yellow and drumstick moves freely.

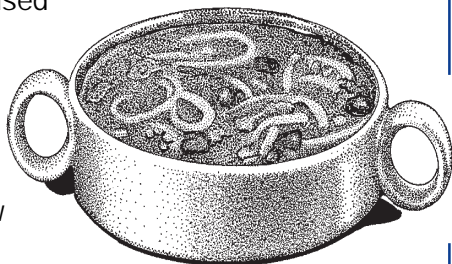
**Fish** is done when it flakes and is opaque (cannot see through it).

- Select recipes that convert easily to microwave cooking, such as casseroles, stews, baked chicken, fish and vegetable dishes. Broiled meats, cooked souffles or two-crust pies do not cook well in the microwave.

**Never attempt to deep-fat fry in your microwave oven.**

- As a basic rule, when converting conventional recipes to microwave recipes, cut the suggested cooking time by one-fourth. For example, if the conventional recipe calls for 30-minutes cooking time, the microwave time should be six to eight minutes. It is helpful to find a similar microwave recipe and adapt the recommended time and power setting to the conventional recipe you are adapting. The cookbook that came with your microwave oven will be helpful.

- Casseroles cook well in the microwave. Cut foods into uniform pieces. Condensed soup makes a good base for casseroles. Select a dish that is large enough to allow for stirring. Stir occasionally during cooking. To keep crumb toppings crisp, sprinkle on just before standing time.



- Season meats with herbs and spices before cooking, salt after cooking.

- Stew meats do not need to be browned before cooking. Omit any oil or fat that would be used for browning. Cut stew meat into 1 1/2-inch pieces. Cut carrots, potatoes and other firm vegetables into small pieces. Reduce liquid by one-fourth. Cover with a lid and cook at HIGH to bring liquid to a boil, then cook at LOW until tender. Stir occasionally.

## Microwave Shortcuts

To further illustrate the versatility of your microwave oven, here are some tips to help you save more time. Since microwave ovens vary considerably from one to another, the times given below are approximate.

**DO NOT LEAVE THE MICROWAVE OVEN UNATTENDED.**

**To soften dried fruits**, place fruit in a small bowl and sprinkle with water. Cover with plastic wrap and heat at HIGH for 30 to 40 seconds.

**To melt butter or chocolate**, place 1/4 pound butter or one square (1 ounce) of chocolate in a dish. On MEDIUM-LOW setting, heat butter for 1 to 2 minutes or chocolate for 2 to 3 minutes. Stir before adding more time.

**To toast coconut**, spread 1/3 cup coconut in a 9-inch pie plate. Cook at HIGH or 1 to 1 1/2 minutes or until golden brown, stir twice.

**To remove an oven odor**, combine water with the juice and peel of one lemon in a small bowl. Heat on HIGH for 5 minutes, wipe oven interior with damp cloth.

**To dry herbs**, place a few sprigs or 1/2 cup leaves between paper towels. Heat on HIGH for 1 to 1 1/2 minutes or until dry and crumbly. Check frequently. Timing may vary with different herbs.

**To dry lemon or orange peel**, place grated peel in a glass bowl. Heat at HIGH for 30 to 60 seconds or until dry, stir once.

**To soften hard ice cream**, warm a half gallon at LOW for 3 1/2 to 5 minutes.

**To heat liqueurs for flaming desserts**, place 1/4 cup liqueur in glass measure. Heat at HIGH for 15 to 25 seconds. Pour over dessert and ignite.

**To roast nuts**, place 1 1/2 cups nuts in 9-inch glass pie plate. Heat at HIGH for 3 to 4 minutes, stir twice.

**To toast sesame seeds**, place 1/4 cup of sesame seeds in a small bowl. Cook at HIGH for 2 1/2 to 3 1/2 minutes, stir twice.

**To make croutons**, cut enough dry bread to make 2 cups of bread cubes. Spread cubes in a shallow dish. Cook at HIGH for 3 to 4 minutes, stir occasionally.

**To soften brown sugar**, place 1 cup hard brown sugar in a dish with a slice of bread or a wedge of an apple. Cover with plastic wrap. Heat at HIGH for 30 to 60 seconds.

**To soften a 3-ounce package of cream cheese or 1/4 pound of butter**, remove from wrapper and place on a dish. Heat at LOW for 30 to 60 seconds.

**To warm a slice of fruit pie**, place on a dish and heat at MEDIUM-HIGH for 15 to 45 seconds.

**To shorten barbecue cooking time**, partially cook chicken, ribs, etc. in the microwave oven. Then season and finish cooking on a barbecue grill.

**To cook chicken pieces**, the microwave should be set at HIGH especially when you need chicken for salad, sandwiches or casseroles. One pound of chicken should cook 7 to 8 minutes.

**To separate cold bacon**, heat packages at HIGH for 15 to 30 seconds.

### More microwave tips:

Keep your microwave oven clean. Wipe up spills or splattered food after each use or they will become very hard to remove later. Keep the door and the seals around it clean, so the door closes tightly.

After thawing food in the microwave, cook it immediately or refrigerate it. **DO NOT REFREEZE.** Do not let it sit in the microwave more than a few minutes after thawing, because bacteria will grow and the food will become unsafe.

### References:

Freeland-Graves, J.H. *Foundations of Food Preparation*, 6th Edition. Prentice-Hall. 1996

Matsushita Electric Industrial Co., Ltd. *The Genius Panasonic Microwave Oven Cookbook*. 1984.

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