

# Lesson Plan: Successful Microwave Cooking

<b>Instructor:</b> Teresa Wood and Sara McNaughton	<b>Date:</b> June 27, 2012
<b>Course Title:</b> Foods: Cooking and Nutrition	<b>Specific Topic:</b> Microwave Cooking
<b>Reading Assignment:</b> Handout: "Tips for Successful Microwave Cooking"	

<b>Performance Objectives:</b>	After completion of the lesson, students will be able to: <ol style="list-style-type: none"> <li>1. Understand techniques for microwave cooking.</li> <li>2. How a microwave works.</li> <li>3. Precautions to avoid possible exposure to excess microwave energy.</li> <li>4. Understand foods that do not microwave well.</li> </ol>
<b>Standards:</b>	<ol style="list-style-type: none"> <li>1. Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.</li> <li>2. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.</li> <li>3. Read and comprehend complex literary and informational text independently and proficiently.</li> </ol>
<b>Assessment</b>	Tips of Successful Microwave Cooking Questionnaire (Graphic Organizer Name 1-8)
<b>Materials:</b>	Tips of Successful Microwave Cooking Packet Tips of Successful Microwave Cooking Questionnaire
<b>Procedure:</b>	Entire Class: Introduce Microwave Cooking Lab and Recipe Individual: Students will receive the Tips of Successful Microwave Cooking Packet and separate Tips of Successful Microwave Cooking Questionnaire.
<b>Application of Material:</b>	<i>Students will understand techniques, operations, precautions, and appropriate foods for cooking in a microwave.</i>
<b>Extension Questions:</b>	Authors have reasons for writing the articles they write. In thinking about the article you just read; what are THREE ideas the author would want you to know after reading this article?
<b>Accommodations needed:</b>	

# Tips for Successful Microwave Cooking

## Techniques

Anyone who has ever cooked conventionally is probably already familiar with many of the techniques of microwave cooking. Because standard recipes are used to develop microwave variations, the techniques are really much the same.

All of the techniques are used in microwave cooking either speed up the cooking or equalize the microwave energy that penetrates the food to help it cook more evenly.

**Covering:** Covering helps food cook faster because it holds steam within the cookware. Covering also prevents spattering and helps to tenderize foods.

**Stirring:** Stirring helps to redistribute heat from the outside of the dish to the inside so that the food cooks more evenly.

**Rearranging:** With dishes that can't be stirred, moving or rearranging food from the outside of the dish to the center helps to redistribute heat and promote more even cooking.

**Rotating:** Foods that can neither be stirred nor rearranged can be rotated  $\frac{1}{4}$  to  $\frac{1}{2}$  turn periodically during the cooking time to promote even cooking.

**Turning Over:** The "tops" of large foods are closer to the top of the oven and therefore tend to cook faster than the bottom. Turning large foods over during cooking helps the food to cook evenly throughout.

**Arranging in a Circle:** When more than one food is being cooked, arrange the foods in a circle so that the center of the cookware is empty. Foods placed in the center will not cook as quickly as those that are placed toward the outside.

**Piercing:** Some foods, particularly egg yolks or whole potatoes, must be pierced to prevent steam pressure from building up. Piercing the pouches of frozen entrees or vegetables is also recommended.

**Elevating:** All foods, even a cup of coffee, will heat more efficiently if raised off the oven floor by a turned over glass dish or a cooking shelf. The center of the oven permits a more uniform absorption of energy into the food.

QuickTime™ and a  
BMP decompressor  
are needed to see this picture.



## **MICROWAVING: COOKING TERM EXPLANATION**

The microwave oven added the term, “Microwaving” to our cooking language. “Microwaving” means to cook, heat, or defrost foods with microwave energy. Microwaving is a type of cooking, which has its own special benefits, and produces its own food characteristics. Some microwaved foods may be different from what you expect when cooking in a conventional oven or on the range top. The difference may be in appearance, in improved flavor and juiciness, or in cooking technique.

The microwave oven is called an “oven” because it looks more like an oven than any other conventional appliance, but it can take over many of your top-of-range jobs with less time, attention and clean-up. Foods which you used to bake in a conventional oven will taste the same, but may look different. For example, a casserole will heat through quickly, but will not crust over, because the air in a microwave oven is room temperature, not hot and dry.

Like any skill, successful microwaving cooking takes a little practice. Until you are used to its speed, you may overcook. Some foods will be removed from the oven before they look done, because they finish cooking with internal heat. This article is designed to teach you what to expect, and how to achieve successful results with microwaving. You’ll find learning to microwave easy and exciting.

## **HOW A MICROWAVE WORKS**

Microwaves are very short, high-frequency radio waves, and your microwave oven is similar to a miniature broadcasting system. Microwaves are the same type of energy as AM, FM, or CB radio, but the wave length is much shorter.

Where other types of radio waves broadcast over a distance, the microwave broadcasting system is self-contained. When the door is closed and the oven is turned on, a transmitter, called a magnetron, sends a signal to a receiver within the oven. The moment you open the door, the microwave oven stops broadcasting, just as your radio will not play if the station has “signaled off.” No energy will be received from the oven while the door is open.

The receiver deflects the microwave energy into the metal-lined oven cavity, where it agitates food molecules. Since microwaves cannot penetrate metal, all the energy remains inside the oven, where it turns to heat in the food.

## **PRECAUTIONS TO AVOID POSSIBLE EXPOSURE TO EXCESS MICROWAVE ENERGY:**

1. Do not attempt to operate the oven with the door open since open-door operation can result in harmful exposure to microwave energy. It is important not to defeat or tamper the safety interlocks.
2. Do not place any object between the oven front face and the door or allow soil or cleaner residue to accumulate on sealing surfaces.
3. Do not operate the oven if it is damaged. It is particularly important that the oven door close properly and that there is no damage to the (1) door (bent), (2) hinges and latches (broken or loosened), (3) door seals and sealing surfaces.
4. The oven should not be adjusted or repaired by anyone except properly qualified service personnel.
5. On models equipped with automatic temperature control, **DO NOT OPERATE**, with the temperature probe trapped between door and oven front.

## **SOME FOODS DO NOT MICROWAVE WELL**

No single appliance does everything well, and your microwave oven is no exception. Some things should not be done, either because results are not satisfactory, or because conventional cooking is more efficient.

**EGGS IN SHELLS** and shelled boiled eggs can burst.

**PANCAKES** do not crust, however, they reheat well.

**UNPACKAGED POPCORN** is too dry to attract microwave energy.

**CANNING** requires prolonged high temperatures.

**DEEP FAT** frying can cause burns.

**BOTTLES** with narrow necks may shatter if heated.

**LARGE** food loads, such as a 25 lb. turkey or dozen potatoes cook more efficiently in a conventional oven.

### *Tips for Successful Microwave Cooking*



Write ONE sentence explaining how a microwave works.

1 \_\_\_\_\_



What TWO features keep microwaves from having energy escaping?

1 \_\_\_\_\_

2 \_\_\_\_\_



Write the THREE benefits of covering foods in the microwave.

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_



What FOUR food types are recommended to be pierced before cooking?

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4. \_\_\_\_\_

Why should they be pierced?

\_\_\_\_\_



What are the FIVE precautions of microwaving?

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

Which one do you think is the most important? Why?

\_\_\_\_\_

6



What are SIX benefits to microwaving food?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

7



What SEVEN things do not microwave well?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_

What are the reasons they don't microwave well?

8



What are the EIGHT techniques for better microwave cooking? Rank them in order of importance (1 is most important to 8 being least important).

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_

What are the reasons they don't microwave well?