Objective

Participant will:

1. Identify basic methods of microwave cooking.
2. Identify safe microwave cooking techniques.
3. Name three ways to use a microwave besides reheating.
4. Describe how to cook vegetables in a microwave.
5. Describe how to convert conventional recipes to microwave recipes.

Required Materials:

- Microwave oven.
- Variety of food containers, including some that are safe to use in the microwave and some that are not.
- Ingredients and cookware for recipe(s) being demonstrated (see pg 8).
- Utensils for tasting.

Preparation Required:

- Review lesson plan.
- Gather and prepare ingredients needed for demonstration.
- Make copies of recipes and any other handouts you wish to distribute (see pgs. 7-8) – enough for all participants.
- Make copies of all required paperwork for lesson.
LESSON PLAN

Introduction
Time: 5 minutes

- Welcome everyone to the class and thank them for taking time to participate.
- Briefly introduce yourself and the program.
- **Ask the class:** How do you use your microwave?
  - Cook frozen dinners.
  - Make popcorn.
  - Cook oatmeal.
  - Make Easy Mac.
  - For melting cheese, chocolate or other foods.
  - To heat water or leftovers.
- **Ask the class:** Has anyone used their microwave to cook an entire meal before?
- Microwave ovens are good for much more than just reheating leftovers or cooking a frozen dinner. Cooking in the microwave doesn't heat up the kitchen, it's often faster than a conventional oven, and some foods, like vegetables, retain more nutrients when cooked in the microwave. Today we will be learning to use a microwave to prepare homemade meals. A microwave provides a quick and easy alternative to some basic cooking techniques.
- The things you learn today will help you to use a microwave in preparing other foods that can be healthy and quick.

Objective 1: Identify basic methods of microwave cooking.
Time: 5-10 minutes

- **Ask the class:** How does a microwave cook the food?
- Microwave ovens make water, sugar, and fat molecules vibrate and that vibration causes heat.
- There are some things we have to think about when we cook using a microwave that we don't have to worry about with a conventional oven.
  - Most foods are cooked starting at room temperature or refrigerated temperature. If you use frozen foods, it will make the cooking time longer and may affect the quality of the food.
  - You usually have to stir the food during the cooking process to distribute the heat more evenly.
  - Foods that can't be stirred need to be turned over during cooking.
  - It works best to place the food in a circular dish or to arrange it in a circle on the oven tray so that it will cook more evenly.
  - If you double a recipe, it affects the cooking time and takes longer.
- **Ask the class:** Has anyone ever tried to bake potatoes in the microwave? How long does it take to bake four potatoes compared to only two?
  - It takes almost twice as long to bake four potatoes as it does two.
  - It works best when foods are the same size and shape so that they will be done at the same time. If you have different sizes of foods, put the bigger pieces on the outside and the smaller pieces in the middle.
  - Every microwave cooks differently so it is important to watch for signs of doneness according to the recipe in addition to the specified time.
  - Microwave recipes have a 'standing time'. That means that the dish needs to sit on a solid surface (not a cooling rack) so that it can retain the heat and finish cooking. This allows the heat to be more evenly distributed in the food.
- **Ask the class:** What other factors do you think affect the way things cook in a microwave?
  - The more moisture the food has (think soup), the longer the cooking time.
  - The more dense the food (think potato), the longer the cooking time.
o Foods with a higher fat content or higher sugar content heat more quickly. If you substitute low-fat or low-sugar versions for ingredients, a longer cooking time may be necessary.
o Pierce or score foods that are covered with a skin or outer membrane like potatoes and egg yolks with a fork or knife. This prevents pressure from building up and the food from bursting.
o Watch the food as it cooks through the microwave oven door. Hot liquids have a tendency to boil over. Open the door immediately if food is vigorously bubbling and about to boil over but do NOT grab the container. Sometimes you can decrease the power level to 80% to keep foods from boiling over.
o A drawback to cooking meat in a microwave is that it doesn’t brown like it does in a conventional oven. You can get that ‘browned’ look by brushing the meat with Worcestershire sauce, soy sauce, butter, or spices. Larger cuts of meat that require long cooking times will brown lightly on their own.

• **Ask the class:** Why would you want to cover the food while it’s cooking in the microwave?
o In microwave cooking, covering the food serves the same purpose as in conventional cooking. A cover holds in the hot steam, shortens cooking time, keeps food moist and prevents splattering. Only use microwave safe plastic, wax paper, or non-recycled paper towels to cover your food (recycled paper towels may burn in microwave).

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**Objective 2: Identify safe microwave cooking techniques.**

Time: 15 minutes

• **Show the class an assortment of food containers, including containers that are safe to use in the microwave and those that are not.**

• **Ask the class:** Which of these containers are safe to use in the microwave? Make sure class discussion covers the following:
  o Only use cookware that is specially manufactured for use in the microwave oven. Glass, ceramic containers and all plastics should be labeled for microwave oven use. Check the item or its packaging label to make sure.
  o Plastic storage containers such as margarine tubs, take-out containers, whipped topping bowls and other one-time use containers should never be used in microwave ovens. These containers can warp or melt, possibly causing harmful chemicals to leach into the food.
  o Microwave plastic wraps, wax paper, cooking bags, parchment paper, and white microwave-safe paper towels should be safe to use. Do not let plastic wrap touch foods during microwaving.
  o Never use thin plastic storage bags, brown paper or plastic grocery bags, newspapers or aluminum foil in the microwave oven.
  o Round dishes are better than square or oblong containers for reheating.

• **Ask the class:** True or False? The microwave is a great way to defrost meats. It is okay to defrost the meat in the foam tray and plastic wrap it came in when you bought it.
  o **FALSE:** Although it is safe to defrost meat in the microwave, you must remove the meat from it’s original packaging before defrosting. Do not use foam trays and plastic wraps because they are not heat stable at high temperatures. Melting or warping may cause harmful chemicals to leach into food.

• **Ask the class:** True or False? During the defrosting time, food should be turned from top to bottom and frozen pieces should be pulled apart. If your microwave oven doesn’t have a carousel, the food should also be rotated and rearranged several times.
  o **TRUE.**
• **Ask the class**: True or False? You thawed your ground beef in the microwave but then something came up and now you cannot cook the meat for dinner as you planned. It is okay to either refreeze the meat or stick it in the fridge and use it tomorrow.
  o **FALSE**: Cook meat, poultry, egg casseroles and fish immediately after defrosting in the microwave oven because some areas of the frozen food may begin to cook during the defrosting time. Do not refreeze or refrigerate it. Never partially cook food and attempt to store it for later use. When you partially cook food in the microwave oven and then finish cooking it on a grill or in a conventional oven, it is important to transfer the food to the other heat source immediately.

• **Ask the class**: True or False? In most microwave ovens, 8 to 10 minutes per pound at 50% power (or on the defrost setting if your microwave has one) is about the average time needed to defrost most meats.
  o **TRUE**.

• **Ask the class**: True or False? You cook meat on high power to ensure it cooks thoroughly.
  o **FALSE**: Do not cook meats on high power (100%) for longer than a few minutes. Meat should be cooked on medium power (50%) for longer periods. This allows heat to reach the center without overcooking the outer areas.

• **Ask the class**: True or False? Use a food thermometer or the oven’s temperature probe to make sure the food has reached a safe minimum internal temperature. Beef steaks, roasts, and ground beef should all be cooked to at least 145° F.
  o **FALSE**: Cook foods to the following safe minimum internal temperatures (use a thermometer to check):
    - Beef, veal and lamb steaks, roasts and chops should be cooked to 145° F.
    - All cuts of pork to 160° F.
    - Ground beef, veal, lamb to 165° F.
    - Poultry to 165° F.
    - Egg dishes, casseroles to 165° F.
    - All leftovers to 165° F.
  o Always allow standing time, which completes the cooking, before checking the internal temperature with a food thermometer.

• **Ask the class**: True or False? It is safe to cook a stuffed chicken in the microwave.
  o **FALSE**: Cooking whole, stuffed poultry in a microwave oven is not recommended. The stuffing might not reach the temperature needed to destroy harmful bacteria. Cook stuffing separately to 165° F.

• Safe food preparation techniques need to be followed when cooking with the microwave just like conventional cooking. Arranging food items evenly on a plate, covering food with a lid or microwave safe plastic wrap, and stirring and rotating the food midway through cooking helps to reduce the chance of cold spots in the food that could harbor harmful bacteria.

• Remember, cooking times may vary because ovens vary in power and efficiency.

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**Objective 3: Name three ways to use a microwave besides reheating.**

**Time: 5-10 minutes**

• **Ask the class**: Can you think of any other fun ways to use a microwave besides reheating and cooking food?

• **Pass out ‘Creative Ways to Use a Microwave’ Handout (see pg 7). Give participants time to silently read through handout.**

• **Ask the class**: Which of these ideas have you tried before?

• **Ask the class**: Which new ideas do you think you will use?
Objective 4: Describe how to cook vegetables in a microwave.

Time: 5-10 minutes

- **Ask the class:** Why would you choose to cook vegetables in the microwave instead of steaming them on the stove?
  - Since cooking in the microwave requires little water, more nutrients are retained. Also, microwave cooking preserves and enhances natural flavors, so you might not need to add as much salt.
  - You will have more success cooking vegetables in the microwave if you know a few tips.
- **Pass out Veggies in the Microwave handout (see pg 8).** Give participants time to silently read through tips.
- **Ask the class:** What did you learn from this information that you didn’t know before?
- **Combine vegetables for Cheesy Vegetable Soup and cook while discussing next section (set timer for 7 minutes – see page 8).**

Objective 5: Describe how to convert conventional recipes to microwave recipes.

Time: 8 minutes

- **Ask the class:** Has anyone ever tried to make a favorite recipe using the microwave instead of the oven? Was it successful? What tips can you share?
  - To convert a one-dish meal recipe for use in the microwave, reduce the cooking time by one fourth to one third.
  - Since there is less evaporation, reduce the amount of liquid ingredients by about one fourth.
  - Some sources also suggest using slightly less seasoning when making the recipe in the microwave. Taste foods after they are cooked and add additional seasoning if needed.
  - Pasta, rice and dried beans must be conventionally cooked before adding them to a dish that's cooked in a microwave.
  - Recipes for foods that are crispy do not do well in the microwave and should be cooked in a conventional oven.
  - When doubling a recipe, do not automatically double the time. Increase the cooking time by one half to start. Test the results before adding more cooking time.
  - For best results, when trying a microwave recipe for the first time, always follow the shortest amount of time given and add extra time if needed. Microwave recipes in magazines, newspapers and on the internet are usually written for 600 to 800 watt ovens. Know the wattage of your microwave oven and make adjustments if necessary. For microwave ovens less than 600 watts, add about 15 seconds for each minute of cooking time. For microwave ovens over 1000 watts, decrease cooking times by 15 seconds for every minute, or use reduced power settings.

Summary:

Time: 2 minutes

- **Add remaining ingredients to soup recipe and cook another 6 – 9 minutes (see page 9).**
- As you can see, a microwave is a very useful tool that helps you get meals on the table in no time flat.
- Some things to remember about using a microwave oven include:
  - They cook foods by vibrating water, sugar, and fat molecules, which causes heat.
  - Unlike conventional ovens, the foods in a microwave oven need to be turned or rotated for even heating.
Unlike conventional ovens, the more food you put in the microwave, the longer it takes to cook.

- The more moisture the food has, the longer it takes to cook.
- The more dense the food, the longer it takes to cook.
- It works best to cover the food while cooking. This helps with more even heating, shortens the cooking time, and creates less spatters and mess.
- Some containers are safe for microwaving in and others are not. Make sure you use only safe containers by checking the container or its packaging to make sure.
- Round dishes are better than square ones for even heating and cooking.
- Meat defrosted in the microwave should be cooked immediately.
- Allow standing time for microwaved dishes.
- When converting a recipe, less liquid and less time is needed in the microwave than in a conventional oven.

- **Ask the class:** What tip did you learn today that you will use first?
- **Ask the class:** Are there any questions?
- Stir soup and serve to participants.

References


This material was funded by USDA’s Supplemental Nutrition Assistance Program – SNAP. The Supplemental Nutrition Assistance Program (SNAP) provides nutrition assistance to people with low income. It can help you buy nutritious foods for a better diet. To find out more, contact 1-800-221-5689 or visit online at http://www.fns.usda.gov/snap/. In accordance with Federal Law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, religion, political beliefs or disability. To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800)795-3572.
Creative Ways to Use a Microwave

Get more juice from citrus fruit
Gently warm lemon, lime or orange on full power for 10 seconds before squeezing.

Plump and soften raisins and other dried fruit
Place fruit in small bowl; sprinkle with water. Cover tightly with plastic wrap; microwave on full power for 30 - 40 seconds.

Peel peaches or tomatoes
Bring water to boil in deep microwavable bowl. Drop tomatoes or peaches in water for 5-10 seconds each. The skin will loosen and peel off easily.

Blanch fresh vegetables before freezing
Wash and chop, peel or slice vegetables. Place in microwave-safe bowl. Add small amount of water, cover and microwave on full power 3 - 4 minutes per pound, stopping to stir and re-arrange halfway through. Drain; immediately plunge vegetables into ice-cold water to quickly cool. Drain again; pack vegetables in zippered storage bags and freeze.

Toast coconut
Spread coconut in thin layer on microwave-safe pie plate or paper plate. Microwave on full power for 2 - 3 minutes or until light golden brown. Watch closely to prevent over-browning.

Blanch almonds
Microwave cup of water until it boils. Place almonds in separate cup. Add enough boiling water to cover almonds. Microwave on full power 30 seconds. Drain and rub off almond skins.

Toast sesame seeds, sunflower seeds, pumpkin seeds, sliced or slivered almonds
Place layer of seeds or nuts on microwave-safe plate sprayed with non-stick cooking spray. Microwave seeds 3 - 4 minutes and nuts 3 - 5 minutes on full power. Stop to toss gently or stir often. Brown very lightly – they will continue to darken as they cool.

Soften brown sugar
Place hardened brown sugar in plastic bag. Add slice of soft white bread or quarter of fresh apple. Close bag tightly and microwave on full power 20 seconds. Discard bread or apple and stir sugar.

Liquefy honey that has crystallized and hardened
Microwave at 50% power, stopping to check at 15-second intervals. Crystallized honey will liquefy quickly. Total time depends on the amount and condition of honey.

Make croutons and dry breadcrumbs
Microwave 4 cups bread cubes or bread crumbs 5 - 7 minutes at full power.

Soften tortillas
Loosely wrap 3 - 4 corn or flour tortillas in waxed paper. Microwave on full power 15 - 25 seconds.

Freshen chips and snack crackers
Microwave, uncovered, about one minute on full power.

Cook healthier bacon
Use microwave bacon grill designed so that fat drains away as meat cooks.

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**Veggies in the Microwave**

When cooking fresh vegetables in the microwave, you will have more success if you remember a few simple things:

✔ The more dense the vegetable (think carrot, beet, or potato), the more water you will need to cook it. The more tender the vegetable (think spinach), the less water you need.

✔ Most vegetables are best when cooked to tender-crisp. Put them in microwave safe container, add small amount of water, and cover them with a lid or microwave safe plastic wrap (make slit in plastic wrap for steam to escape). Stir halfway through cooking time to ensure even cooking. Do not add salt during cooking as it might cause dark, tough spots.

- Leafy veggies – 3 to 6 minutes
- Asparagus, broccoli, green beans – 7 to 10 minutes per pound
- Carrots 10 to 12 minutes per pound
- Beets, boiled potatoes – 15 minutes

✔ Pierce the skins of whole vegetables such as potatoes or squash to allow the steam to escape and prevent exploding.

- Pierce skin of potato, sweet potato, or yam a few times with a fork. Place a paper towel in microwave. Lay potato in the center of oven and cook on full power about 4 minutes for 1; 12 to 14 minutes for 4; 18 to 20 minutes for 6 (or until tender). Test with fork. For more than one potato at a time, select potatoes that are uniform in size.

- Arrange potatoes in a circle around the outside edge of the plate, at least one inch apart. Finish by wrapping in foil, shiny side in, and let stand up to 30 minutes.

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**Cheesy Vegetable Soup**

2 cups frozen broccoli, cauliflower, carrot mixture
1 cup peeled, cubed potato
1/2 cup chopped onion
1/2 cup chopped celery
1 can (15 oz) chicken broth
1 can condensed cream mushroom soup
2 cups shredded cheddar cheese

In 2 quart casserole dish, combine frozen mixed vegetables, potato, onion, and celery. Cover and microwave on high for 7 – 10 minutes, or until vegetables are tender, stirring once. Mash vegetables slightly if desired. Mix in remaining ingredients. Re-cover and cook another 6 – 9 minutes or until cheese melts and mixture can be stirred smooth. Serves 4