

## *Lesson Eight - Microwave Cooking*

The microwave oven is probably the most frequently used appliance in the kitchen today, and yet, it is the most under-utilized. We use it to “zap” a bag of popcorn or a frozen entrée, or just to heat a cup of coffee, but that is often the extent of our microwave expertise.

Rarely do we use the microwave to actually prepare a recipe from scratch. That's unfortunate because the microwave's greatest potential is not realized in most home kitchens. This lesson is designed to teach the girls how to cook with the microwave.

Children often underestimate the power, and potential dangers, of the microwave oven. Because they do not see a hot burner or flame, children don't realize they need to exercise the same care using the microwave oven as they would using a conventional oven.

In their lifetime, it's always been there. According to Amana Appliances, over 90% of American households have a microwave oven. They cook foods quickly, use less energy, and don't heat up the kitchen. Nutrients are preserved, especially when cooking vegetables, because they cook quickly and with little liquid. With all the advantages of microwave cooking, let's be sure the girls know how to use it.

### **In this lesson, the girls will learn to:**

- Use a microwave oven safely
- Prepare a recipe in the microwave oven
- Use microwave cooking techniques

### **Review:**

- Safe handling of raw poultry (Lesson 7)

### **Give each girl a copy of:**

- Before I Cook with the Microwave
- Microwave Safety & Techniques Skill Page
- Hot Chicken Salad in Toast Cups Recipe Page

Study the information in **Microwave Safety and Techniques**, and in **Before I Cook with the Microwave** then read through it with the girls. Review the owner's manual for your microwave oven.

The **Hot Chicken Salad in Toast Cups** recipe uses the microwave to cook the chicken salad, and the conventional oven to bake the toast cups. Help the girls to compare both appliances. The conventional



The girls enjoy eating their Hot Chicken Salad, and “hamming it up” for the camera!

oven is used to make the toast cups because the microwave does not brown and crisp bread very well (some newer models may be an exception). But, the conventional oven would take much longer to cook the chicken breast and it would be more likely to dry out during cooking. The quick cooking time in the microwave makes this recipe a snap! The conventional oven emits a great deal of heat when the door is opened; the microwave does not. See what other differences the girls might notice.

**Demonstrate** the recipe. The first step is to make the toast cups. These are fun to make and can be used with any filling (try sloppy joes, tuna salad, or fruit filling). **Set a timer** when you put them into the oven; they brown quickly!

The apple in the recipe is not peeled so that it adds color and nutrients to the salad. I use a Red Delicious apple, but any sweet variety would work fine. Remind the girls to **wash the apple** and **celery** before cutting them.

The **chicken** is prepared last so that it does not remain at room temperature while other ingredients are being prepared. Before class, place each raw chicken breast in a sandwich bag and seal. Keep refrigerated until ready to cook.

Remind the girls to wash their hands after handling raw meat (and anything else that comes in contact with the raw chicken). This is a good opportunity to **review safe handling of raw meat**. See “Poultry Perfect” in Chapter Seven.

Many recipes call for cooked chicken. If you have some chicken leftover from another meal, that’s great. But, if not, this recipe demonstrates just how easy it is to **cook a chicken breast** in the microwave. Our recipe was tested in an 850-watt microwave oven. Generally, one half of a chicken breast (about 6-8 ounces) cooks in 2 minutes in the microwave. It’s always best to test with a meat thermometer; **boneless chicken pieces are done when the internal temperature reaches 160 degrees**.

**When removing the chicken from the microwave**, use a hot pad or oven mitt. Remind the girls that even in the microwave, dishes do become hot. Show them how to open the dish from the back so that steam escapes away from them.

**The recipe makes four chicken-filled toast cups**. I had my class work in pairs and each girl ate two toast cups. These were a big hit; everyone loved them! They make a tasty light meal your students will enjoy.

## **What you'll need for this lesson:**

### **Ingredients** (per recipe):

4 slices soft bread  
2-3 Tablespoons butter or margarine (to spread on one side of bread)  
Boneless, skinless chicken breast, 6-8 ounces  
1/2 Cup chopped apple  
2 Tablespoons sliced celery  
1/4 Cup shredded Swiss cheese  
1/3 Cup mayonnaise  
1/2 teaspoon lemon juice  
1 Tablespoon sunflower nuts, optional

### **Supplies:**

Muffin tin, regular size with 12 holes  
Rolling Pin, optional, to flatten the bread  
Steak knife or paring knife  
Table knife to spread butter or margarine  
Cutting board  
Medium sized microwave-safe bowl  
Cover for the bowl or plastic wrap (cut to vent)  
Measuring Cup  
Measuring Spoons  
Mixing Spoon  
Small microwave-safe dish with cover for chicken breast  
Fork or Tongs  
Hot Pad or oven mitt  
Meat Thermometer

### **To serve:**

Small plates or paper plates  
Napkins  
Forks  
Glasses or paper cups  
Beverage



Name:

## *Before I Cook with the Microwave*

You've probably used a microwave oven. We see them everywhere, from home kitchens to convenience stores. They heat food very quickly, making them seem essential in our fast-paced world. It's hard to imagine that only a generation ago, microwave ovens were virtually unheard of.

Generations ago, women cooked over an open fire, often in the fireplace that also warmed the house. The invention of wood-burning and coal-burning stoves brought a big improvement over the open hearth, and they were much safer. Then gas and electric stoves came along, making it easier for the cook to regulate the cooking temperature. It wasn't until the 1970's that microwave ovens became widely available and affordable.

**How were microwaves invented?** During the 1940's, scientists developed the magnetron vacuum tube. It was used for powerful and accurate radar during World War II. Raytheon Company manufactured over 1,000 of these magnetrons a day! The workers often warmed their hands in front of them. One day, an engineer noticed that a candy bar in his pocket had melted while he stood near the magnetron. He was curious. He placed some popcorn in front of the magnetron and it popped. He became convinced that the magnetron could be used to cook food.

**The first microwave, built in 1947**, was so cumbersome – it weighed 750 pounds – that it was impractical. It would be twenty years before Raytheon and Amana developed the first microwave oven for the home. Since then, many improvements have been made and the cost has become more affordable.

**Learning how microwaves work** will help us understand how to use them safely and efficiently. Microwave ovens are just that; they are a type of oven. Even though you do not see a heating element like you would see in a conventional electric oven, the microwave oven heats and cooks food, too.

Sometimes you hear people say they are going to “nuke” food in the microwave, but there is nothing nuclear about microwave cooking! **“Micro-waves” are high frequency electromagnetic waves**, like radio waves only much shorter.



The first Radarange microwave oven, on the right, was 5 times the size of today's models, stacked up on the left.

Radarange ® is the registered trademark of Maytag Appliances, Used with permission.

The microwaves enter the oven through a small opening inside. Then a stirrer fan blows to distribute the microwaves more evenly. The oven interior is metal-lined, keeping the microwaves inside. Microwaves cannot penetrate metal. Even the glass door has a metal screen in it. The microwaves bounce off the metal and stay inside the oven.

Microwaves will go through glass, plastic and paper – and into food, but only a little way. **They only penetrate food to a depth of less than 2 inches.** The microwaves cause the food molecules to vibrate over 2 billion times per second! That rapid vibration causes heat that cooks the food.

If the microwaves only reach the first inch or two of the food, how does the rest of the food cook? **Microwaves penetrate the food from all sides** at once. The heat then spreads to the interior portions of the food by conduction. That's why we stir food, and turn the dish a quarter turn, to help the food cook more evenly and cook all the way through.

**Different types of food cook at different rates in the microwave.** Foods high in sugar or fat cook faster because fat and sugar absorb microwaves more quickly. If you heat a jam-filled donut in the microwave, for example, you need to be careful not to burn your mouth because the jam will be much hotter than the donut around it.

Dense foods, like meatloaf or lasagna, take longer to cook than loose or less dense foods. It takes less time to heat a sloppy joe than it would to heat a piece of lasagna.

The more food you have in the microwave, the longer it will take to cook because the same amount of microwave energy has to be absorbed by more food.

Be sure to read the manual that came with your microwave oven. Higher wattage ovens cook faster. A 900-watt oven will cook much faster than a 500-watt oven. Most recipes for the microwave tell you the wattage of the oven used to determine the cooking time for that recipe. The **Hot Chicken Salad** recipe was tested in an 850-watt microwave. If you have a 600-700 watt oven, you will need to add a little more cooking time. Add just 15-30 seconds of cooking time at once.

The microwave oven is an efficient appliance that cooks foods quickly. Use it safely and learn to prepare recipes designed for the microwave so you will realize all of its time-saving benefits.

Name:

## Hot Chicken Salad in Toast Cups

### Ingredients

#### **Toast Cups:**

4 slices soft bread, crusts removed  
2-3 Tablespoons butter or margarine

#### **Chicken Salad:**

One half chicken breast, boneless & skinless (about 6-8 ounces)  
1/2 Cup finely chopped apple  
2 Tablespoons finely sliced celery  
1 Tablespoon sunflower nuts, optional  
1/4 Cup shredded Swiss cheese  
1/3 Cup mayonnaise  
1/2 teaspoon lemon juice

### Method:

**Yield:** 4 Toast Cups, 2 servings

1. Make the **Toast Cups** first: Preheat the oven to 375 degrees. Press each slice of **bread** (crusts removed) to flatten slightly. Use clean hands or roll bread with a rolling pin.
2. Spread one side of each piece of bread with **butter or margarine**.
3. Press each slice of bread, buttered side down, into the hole of a muffin pan.
4. Bake at 375 degrees about 8 minutes or until lightly browned. Set aside.
5. Chop the **apple** and slice the **celery**. Put it in a medium-sized microwave-safe bowl.
6. Add the **nuts** (optional), **cheese**, **mayonnaise** and **lemon juice**. Mix well.
7. Cover and microwave 30 seconds on High. Stir. Microwave 15 seconds longer or until cheese is melted and mixture is hot. Leave mixture covered.
8. Cook the **chicken breast** in the microwave. Place the chicken breast in a small microwave-safe dish and cover (do not add water). Microwave on High 1 minute.



Preparing Toast Cups

- 9.** Turn the chicken over with a fork or tongs. Cover and cook 1 more minute on High. Leave covered and let stand 5 minutes.
- 10.** Open the lid carefully so steam escapes away from you. Check the chicken breast with a meat thermometer. It should read 160 degrees. Allow the chicken to cool a few minutes.
- 11.** Cut the chicken into bite-sized pieces. The meat juices should be clear. If there is any pink in the juice or in the chicken, return it to the microwave and cook on High an additional 30 seconds, or until done.
- 12.** Combine the chicken pieces with the cheese and apple mixture. Mix well. Spoon into toast cups. Serve hot.

Name:

**Future Christian Homemakers  
Skill Page**

## *Microwave Safety and Techniques*

Microwave ovens are easy to use; just push a button and the food comes out ready-to-eat, right? Well, not quite. Yes, microwave cooking is an easy, efficient and quick way to cook. But, like any appliance, there are potential hazards and you must learn to operate the microwave oven safely. The first thing you need to do is read the manual that came with your microwave, then follow these general precautions.



The girls serve the Hot Chicken Salad they made in the microwave.

Like a conventional oven, **fires** can start in the microwave, too. Only use appliances with your parent's permission. Heat food for the recommended time and keep an eye on the food through the door. Most foods cook in a very short time. Overcooking can cause a fire. If food ignites, leave the oven door closed, turn off the microwave, and call for help. Never use the microwave to dry clothes or paper; they may ignite.

Do not turn the oven on when it is **empty**. The microwaves will bounce around the inside of the oven and may damage the oven walls. Some people keep a glass of water in the microwave when it's not in use, just in case the oven is turned on inadvertently. That's a good idea, especially in homes where there are young children.

**Steam** builds up in covered foods as they cook. When you open the lid after cooking, carefully open it from the back, so the steam escapes away from you. Steam burns! Use an oven mitt to protect your hand.

Steam also builds up in foods that have membranes or a tight skin such as eggs, hot dogs, and potatoes. Pierce these types of foods in several places with the tip of a sharp knife before cooking. That allows the steam to escape during cooking. Otherwise, they could explode! Steam builds up in foods in plastic bags such as frozen vegetables and entrees. Pierce the top of the bag or lift a corner of the cover to vent.

Do not use **metal** in a microwave oven; it will cause sparks. Microwaves cannot penetrate metal. In some ovens, you can use a small amount of foil to shield a part of the food. Check your owner's manual to see if this is safe for your oven and ask an adult for help. Glass dishes that have metal designs in them, and metal wire twist-ties also may cause sparking.

Use a **cover** with a vent when heating open containers of food. This prevents food from splattering all over the oven as it heats. Plastic covers, designed for the microwave, fit over a dinner plate and are handy to cover other sized plates as well.

Many types of paper towels are microwave-safe and can be used as a cover, but they may fall off during cooking.

**Plastic** containers, plastic utensils and plastic wrap are used in microwave cooking: but be careful, **plastic can melt!** Many plastic containers cannot be reused. If you use plastic wrap to cover a dish, be sure it is recommended for microwave use and leave an opening to safely vent steam.

Keep your microwave **clean**. If food splatters during cooking, wipe it up before it has a chance to dry. The job is much easier if you take care of it promptly. If the food is still hot, allow it to cool briefly before wiping it up to avoid burning your hand.

What if the inside of your microwave has become encrusted with food? Put a cup of water in a microwave-safe dish into the microwave. Turn it on for 2 minutes or until the water begins to boil. Turn the oven off; leave it closed 5 minutes to allow the steam to soften the splatters. Wipe clean.

Your owner's manual will tell you what to use to clean the inside and outside of your oven. Follow those directions. Generally, a little soap and warm water is all that is needed.

Now that you know some of the safety rules, what **special techniques** do you need to know to make microwave cooking a success?

**Foods cook quickly** in the microwave and it easy to overcook, and ruin, them. **Cooking time varies** depending on the:

- wattage of your oven
- type of food you are cooking
- amount of food
- starting temperature of the food

For example, it takes longer to cook four potatoes than to cook one or two. Icy cold foods take longer to heat than room temperature ingredients.

In the microwave, the edges of the food heat first. **Stir** food to bring it from the edges to the center during cooking. **Rotate** the dish a quarter turn to promote even cooking. **Arrange** dense parts of food toward the edge of the dish. Space foods out evenly so energy reaches all sides.

**Standing time** is part of the cooking time and is essential in microwave cooking. Food continues to cook even after the oven is turned off.

**Round pans** cook food more evenly than square and rectangular dishes because corners absorb more energy and tend to overcook.

Use the microwave as carefully as you use a conventional oven. These safety tips and cooking techniques will help you successfully prepare food in the microwave.

*Extending The Lesson ...  
Making the Most out of your Microwave*

Many foods can be cooked quickly and easily in the microwave. However, some foods are not well suited to this method of cooking. Generally, breads, cakes from scratch, cookies and pastries cook unevenly and are better suited to traditional baking methods. Deep-fat frying should never be attempted in the microwave because the fat can reach dangerous temperatures and cause a fire.

Most other foods cook well in the microwave. **Vegetables** are best prepared in the microwave because they can be cooked with very little water and the cooking time is short, preserving nutrients and color. Microwave directions are given on packages of frozen vegetables. Cooking times for fresh veggies will vary depending on the amount and size of the vegetables to be cooked, and the wattage of your microwave. Check a cookbook or your owner's manual for cooking times. As a rule of thumb, I add 2-3 T. water to 2-3 Cups of sliced fresh vegetables in a covered microwave-safe dish. Microwave on High for 2 minutes, stir, then add one more minute on High. Allow 5 minutes of standing time for the vegetables to steam. After checking with a fork, cook veggies another 30-60 seconds as needed.

Green Beans Italiano, a microwave recipe, can be found in the Vegetable chapter, Chapter 11.

Cooking **rice** in the microwave requires much less attention than cooking it on top of the stove. Rice requires the same amount of time to absorb liquid no matter how you cook it, but you don't need to watch it constantly in the microwave. I find this method much easier. Bring 2 Cups of water to a boil in a microwave-safe casserole or saucepan. Add 1 Cup regular white rice (not quick cooking type). Cover and microwave 20 minutes at 30% power. Allow rice to stand 5 minutes. Follow the same procedure for brown rice, but microwave at 30% power for 45-50 minutes.

Here are some easy microwave recipes your group may enjoy.

**A baked potato** cooks in a 700-watt microwave in 3-4 minutes. Scrub the potato, then prick the skin in several places. Microwave on High 2 minutes, turn the potato over and microwave for the remaining time. Wrap the potato in foil and let it stand 5 minutes so it finishes cooking completely through. Two potatoes cooked at once require 6-7 minutes on High; add additional time for more potatoes. Remember that the microwave energy in the oven is absorbed by the food; that's why longer cooking time is needed when more food is being cooked. Add butter, sour cream, shredded cheese, bacon bits or your favorite toppings to the baked potato.



One of the girls demonstrates her Tomato Slice Pizza Snack recipe for the class.

**The Tomato Slice Pizza Snack** was created by one of my students, and enjoyed by all – even those girls who thought they didn't like tomatoes! Put one tomato slice, ¼" thick, on a microwave-safe plate. Sprinkle with 2 Tablespoons of mozzarella cheese and a dash of garlic powder. Top with chopped pepperoni pieces, if desired. Microwave on High 15 seconds or until cheese melts. Cool for one minute before eating.

To prepare a **baked apple**, core the apple but do not cut all the way to the bottom. Fill the opening with brown sugar, raisins and chopped nuts, if desired. Sprinkle with cinnamon. Stand the apple in a microwave-safe dish and cover. Cook on High 2-3 minutes. Halfway through the cooking time, give the dish a quarter turn. Let stand, covered for 5 minutes. Test with a fork and cook additional minute if necessary. Two apples need 5-6 minutes on High; four apples need 7-9 minutes. Allow 10 minutes of standing time.

Kids enjoy **hot dogs** and they're a snap to prepare in the microwave. Remind the girls that any food with a membrane or skin, like hot dogs, needs to be pricked with a fork before cooking to allow steam to escape. Put a hot dog in a bun, wrap it in a paper towel and microwave on High 45 seconds. Allow it to stand one minute then check for doneness and cook another 15-30 seconds if needed. Hot dogs can also be heated without a bun. Place them in a covered microwave-safe dish and cook on High for 30 seconds for one hot dog (add additional time when cooking more hot dogs together).

**S'mores** are always a favorite and though it's fun to toast marshmallows over the campfire, the microwave is usually more convenient! Place a graham cracker square on a paper towel or plate. Top with 1/3 of a plain chocolate bar (the 1.55 oz. size). Top with either 10 miniature marshmallows or one large marshmallow. Microwave on High 10-15 seconds, just until the marshmallow(s) begins to puff. Top with another graham cracker square. Let stand one minute to allow chocolate to melt.

Check the cookbook section in the library or bookstore for more time-saving microwave recipes.