

Culinary 2
Beam/Stribling
Week 3 & 4

Name _____

Period _____

Culinary Arts 2-Mrs. Stribling 4th 9 Weeks

3rd & 4th Week-April 13th-April 24th, 2020

FL1 Chapter 18 Cooking Methods

Turn-In Procedures: When turning in your assignments, write your name, class period, and teacher's name on the assignment. Please turn in to me in one of the following ways, upload your assignments in FOCUS, e-mail me a copy of your assignments for each week at striblingk@leonschools.net or if you do not have access to the internet, please turn into the drop box at the front of Leon High with **Teacher's Name** at the top.

10.0 Apply principles of food science in cooking techniques.

10.08 Demonstrate and analyze the difference between moist, dry, & combination cooking methods.

3rd Week-April 13th-17th

1. Read through the PowerPoint on Cooking Methods and Cooking Techniques.
 - a. This is found on FOCUS, my website, or hard copy packets at Leon.
2. Complete the Cooking Methods worksheet.
3. Find at least two recipes either in a cookbook or online that use a dry, moist, or a combination cooking technique. Describe the steps to make the recipe and explain what technique is being used. Why do you think this recipe uses that cooking technique? How do you think the technique will affect the dish's color, texture, aroma, and flavor? (This assignment should be at least two paragraphs.)
4. (Optional: Create a dish, using a dry, moist or combination cooking technique & send me a picture.)

Due: Friday, April 17th.

#2 Cooking Methods Worksheet=20 points & #3 Two Recipes with Evaluation=20 points

Name _____ Period _____

Culinary Arts 2-Mrs. Stribling 4th 9 Weeks

4th Week-April 20th-24th

1. Watch the ProStart video on Chicken Fabrication. (If you do not have internet, than skip.)
<http://www.goprostart.com/videos/>
2. Draw on a piece of white paper or notebook paper all the parts of the chicken when fabricated. Label them. Take a picture upload or send me an e-mail of your drawing.
3. Research several ways to cook various parts of the chicken. Describe three appropriate techniques for cooking chicken.
4. Look it up. What is the Maillard Reaction? Think about steaming a piece of chicken in your favorite soup recipe. Now think about a piece of grilled chicken with perfect crosshatching. Both are delicious, but the flavors are quite different. Why? (Describe in a paragraph or two your thoughts.)
5. (Optional: Cook two chicken breasts, one by a dry heat method and one by a moist heat method. What have you learned? Describe your findings.)

Due: Friday, April 24th, 2020

#2/#3 Parts of the Chicken & Cooking Techniques Description=20 points & # 4 Maillard Reaction Research=20 points

Name _____

For each heat method, use online resources and your textbook to fill in the charts and answer the questions below/backside of this paper.

COOKING METHODS

Convection	
Definition	
Pros	
Cons	
Tips for Use	

Conventional	
Definition	
Pros	
Cons	
Tips for Use	

Radiation	
Definition	
Pros	
Cons	
Tips for Use	

1. Practice using on-line converter:

Meat Product: Conventional Temperature: 375°F for 55 minutes = ____°F Convection Temperature for ____ min.

Baked Product: Conventional Temperature: 350°F for 25 minutes = ____°F Convection Temperature for ____ min.

2. Why may timing differ between convection and conventional heat methods if the temperature stays the same?
3. What is the **main** difference between dry heat and moist heat cooking methods? Be specific.

Cooking Methods Matching

In column A, mark each method as either a dry-heat (D), moist-heat (M), or combination-heat (C) cooking method.

In column B, write the letter of the correct description, using the textbook for definitions. **15 POINTS**

Cooking Method	Column A (D, M, or C)	Column B Description	Description
bake			A. A rapid cooking method that uses high heat from a source located above the food.
shallow poach			B. Cooking food in liquid between 160°F and 180°F. The surface of the liquid should show some motion, but no air bubbles should break the surface.
braise			C. Cooking food by surrounding it in steam in a confined space such as a steamer basket, steam cabinet, or combi-oven. Direct contact with the steam cooks the food.
broil			D. A cooking method closely related to sautéing. Food is cooked over a very high heat, generally in a wok with a little fat, and stirred quickly.
stir-fry			E. Cooks food using a combination of steam and a liquid bath. Shallow poaching is a last-minute cooking method best suited to food that is cut into portion-sized or smaller pieces.
deep-fry			F. This method cooks food rapidly in a small amount of fat over relatively high heat.
poach			G. A method of cooking that involves cooking in a liquid or with steam just long enough to cook the outer portion of the food; often placed in an ice bath afterwards to shock the food.
grill			H. Breading- or batter-coating food, immersing (completely covering) it in hot fat, and frying it until it is done. The outside of the food item develops a crispy coating while the inside stays moist and tender.
blanch			I. Cooking food by surrounding the items with hot, dry air in the oven. As the outer layers of the food become heated, the food's natural juices turn to steam and are absorbed into the food.
saute			J. Completely submerging food in a liquid that is at a constant, moderate temperature.
pan-fry			K. Cooking technique similar to braising: Cut the main food item into bite-sized pieces and either blanch or sear them, cook the food in oil first and then add liquid. Requires more liquid than braising. Cover the food completely while it is simmering.
steam			L. Cooks food by surrounding the items with hot, dry air in the oven. As the outer layers of the food become heated, the food's natural juices turn to steam and are absorbed into the food.
roast			M. A cooking method in which the preparer first sears the food item in hot oil and then partially covers it in enough liquid to come halfway up the food item. Then, they cover the pot or pan tightly and finish cooking the food slowly in the oven or on the stovetop until it is tender.
simmer			N. Excellent for cooking smaller pieces of food. The food is cooked on a grill rack above the heat source.
stew			P. Cooking food in an oil over less intense heat than that used for sautéing or stir-

			frying.
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Source: http://wps.prenhall.com/chet_nra_foundations_1/154/39652/10151102.cw/index.html

Cooking Methods & Techniques

Foundations Level 1

How Cooking Alters Food

- **Main Idea-Cooking** is heating food to transform it in some way. The process of preparing food for eating.
- Food is affected in different ways by different cooking techniques.

- The degree of change that occurs during the cooking process depends on the length of cooking time, the temperature, and the cooking technique you use.

- Some methods will produce a great deal of change, while others will not produce very much change.

- Three cooking techniques are dry, moist, and a combination of both.

Heat Transfer

- Heat is a type of Energy. Heat travels in three ways:
- **Conduction**-the transfer of heat from item to another when the items come into direct contact with each other. Ex: cold plate begins to warm when covered with hot food.
- **Convection**-is the transfer of heat caused by the movement of molecules (in the air, water, or fat) from a warmer area to a cooler one. Ex: water heating the bottom of a pan or convection oven by hot air.
- **Radiation**-does not require physical contact between the heat source and the food being cooked. Heat moves by way of microwave and infrared waves.

Dry Cooking Technique

- Uses oil, fat, the radiation of hot air, or metal to transfer heat.
- No moisture is used in this cooking process.
- Any moisture that comes from the food evaporates into the air.
- Evaporates-means that a liquid escapes from a pan as a vapor.
- Examples-baking and sautéing.

Moist Cooking Technique

- Uses liquid instead of oil to create the heat energy that is needed to cook the food.
- Examples: boiling and simmering

Combination Cooking Technique

- Uses both moist and dry cooking techniques.
- It is a 2 step process: You start with one and finish with another.
- Example: Dry Cook-Brown meat Moist Cook-Simmer meat with vegetables in seasoning.
- Objective is to build up food flavors.

What happens to proteins in food when heat is applied?

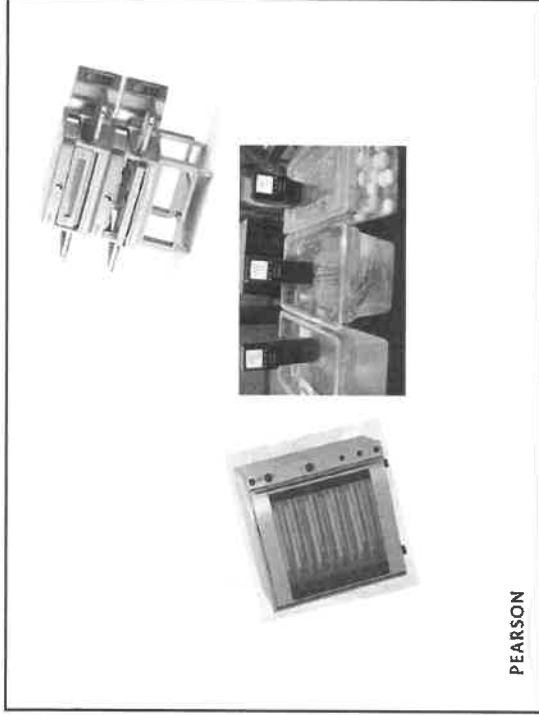
- They Coagulate.

Coagulation is where proteins in food change from a liquid or semi-liquid state to a drier, solid state.

The longer you subject food to heat, the firmer it will be. Too much heat can toughen the protein. Too much moisture is lost.

What effect does overcooking have on food?

- During cooking, moisture is lost, food tissues break down, protein coagulates. The texture of cooked food changes.



Heat Transfer

Heat is a type of energy.

When two items of different temperatures have contact, energy, in the form of heat, *transfers from the warmer item to the cooler* until they both reach the same temperature.

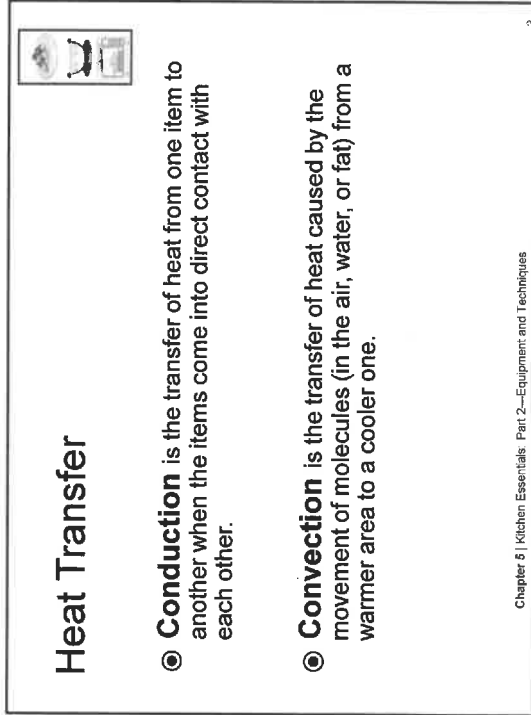
3 Main Types

1. **Conduction** (think conventional oven)
2. **Convection**
3. **Radiation**

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Chapter 5 | Kitchen Essentials: Part 2—Equipment and Techniques

2



Heat Transfer

☉ **Conduction** is the transfer of heat from one item to another when the items come into direct contact with each other.

☉ **Convection** is the transfer of heat caused by the movement of molecules (in the air, water, or fat) from a warmer area to a cooler one.



Heat Transfer

- ☉ **Radiation** does not require physical contact between the heat source and the food being cooked. Instead, heat moves by way of microwave and infrared waves.
- **Infrared** heat is created when the heat from a source is absorbed by one material and then radiated out to the food.

Chapter 5 | Kitchen Essentials: Part 2—Equipment and Techniques

7

Dry-Heat Cooking Methods

In **dry-heat cooking**, food is cooked either by direct heat, like on a grill, or by indirect heat in a closed environment, like in an oven.

- **Broiling**
- **Grilling**
- **Roast and Bake**
- **Griddle**
- **Sauté**
- **Stir-Fry**
- **Pan-Fry**
- **Deep-Fry**

5.3

6

Dry-Heat Cooking Methods

- **Broiling** is a rapid cooking method that uses high heat from a source located above the food.
- **Grilling** is a very simple dry-heat method that is excellent for cooking smaller pieces of food.
- **Roasting and baking** are techniques that cook food by surrounding the items with hot, dry air in the oven.
- **Griddling** is cooking a food item on a hot, flat surface (known as a griddle) or in a relatively dry, heavy-bottomed fry pan or cast-iron skillet.

5.3

7

Dry-Heat Cooking Methods

- The **sautéing** method cooks food rapidly in a small amount of fat over relatively high heat.
 - The fat adds to the flavor.
- **Stir-fry** is a cooking method closely related to sauté.
 - Like sauté, it is a quick-cooking, dry-heat method.
- To **pan-fry** food, cook it in an oil over less intense heat than that used for sautéing or stir-frying.

5.3

7

Dry-Heat Cooking Methods

- To **deep-fry** food, bread or batter coat it, immerse (completely cover) it in hot fat, and fry it until it is done.



5.3

8

Dry-Heat Cooking Methods

Deep Frying Terminology

- **Batter:**
 - Combines dry and wet ingredients

Dry (AP or wheat flour, corn meal, rice flour)

+ **Liquid** (beer, milk, wine, water)

+ **Binder** (egg)

5.3

9

Dry-Heat Cooking Methods

Deep Frying Terminology

- **Breading**
 - Same components as batter, but they are not blended together.

standard breading =

- seasoned AP flour + egg + buttermilk dip.

5.3

10

Dry-Heat Cooking Methods

Deep Frying Terminology

3 Methods (See page. 329-330 for details on each method)

- **Swimming**
 - Gently drop coated food into hot oil
- **Basket**
 - Place in a basket and immerse all at once; lift out the basket all at once
- **Double-Basket**
 - Place food in the basket and fit another basket on top of the first

5.3

11

Dry-Heat Cooking Methods

Swimming	Basket	Double-Basket
		Imagine the basket method (found to left) with an additional basket on top to prevent items from floating to the top

5.3

12

Dry-Heat Cooking Methods

Deep Frying Terminology

- **“Float”** of the item:
 - The point when the item **rises to the surface** of the oil
 - and appears golden brown
 - Indicates **doneness**
- **Recovery time:**
 - The amount of time it **takes oil to reheat** to the correct cooking temperature once food is added.

5.3

15

Dry-Heat Cooking Methods

Deep Frying Terminology

- **Smoking point**
 - The temperature at which fats and oils begin to smoke, which means that the fat has begun to break down.

5.3

16

Dry-Heat Cooking Methods

Deep Frying Reminder

- **Cooking oil is flammable-** be careful and **do not combine with water**
- **Don't let this be you**



5.3

15

Moist-Heat Cooking Methods



Moist-heat cooking techniques produce food that is delicately flavored and moist, which can be served as a separate course or used as a sauce base.

- **Simmer**
- **Poach**
- **Blanch**
- **Steam**

5.3 Chapter 5 | Kitchen Essentials: Part 2—Equipment and Techniques

16

Moist-Heat Cooking Methods



- When **simmering**, completely submerge food in a liquid that is at a constant, moderate temperature.
- When **poaching**, cook food between 160°F and 180°F. The surface of the poaching liquid should show some motion, but no air bubbles should break the surface.
 - **Shallow Poaching:** Last minute cooking method suited to foods cut into portion-sized or smaller pieces. (See pg. 331-332)

5.3

Chapter 5 | Kitchen Essentials: Part 2—Equipment and Techniques

17

Moist-Heat Cooking Methods



- **Blanching** is a variation of boiling. When blanching, partially cook food and then finish it later.
- **Steaming** is cooking food by surrounding it in steam in a confined space such as a steamer basket, steam cabinet, or combi-oven. Direct contact with the steam cooks the food.

5.3

Chapter 5 | Kitchen Essentials: Part 2—Equipment and Techniques

18

Combination Cooking Methods



When the best method for preparing certain food is a combination of dry-heat and moist-heat cooking methods, it is called **combination cooking**.

- **Braise**
- **Stew**

5.3

Chapter 5 | Kitchen Essentials: Part 2—Equipment and Techniques

19

Combination Cooking Methods



- In **braising**:
 1. Sear the food item in hot oil
 2. Partially cover it in enough liquid to come halfway up the food item
 3. Cover the pot or pan tightly and finish the food slowly in the oven or on the stovetop until it is tender.

5.3

Chapter 5 | Kitchen Essentials: Part 2—Equipment and Techniques

20



Combination Cooking Methods

- When **stewing**:
 - Cut the main food item into bite-sized pieces, and either blanch or sear them.
 - Cook the food in oil first, and then add liquid.
 - Stewing requires more liquid than braising.
 - Cover the food completely while it is simmering.

5.3

Chapter 5 | Kitchen Essentials: Part 2—Equipment and Techniques

23



Combination Cooking Methods

Types of Stew

- Blanquette
- Bouillabaisse
- Fricassee
- Goulash
- Navarin
- Ragout
- Matelote

See page. 337 for details on each

5.3

22

Sous Vide

- Sous vide** is a method in which food is cooked for a long time, sometimes well over 24 hours.
 - Sous vide* is French for “under vacuum.”
 - Rather than placing food in a slow cooker, cooks place food in airtight plastic bags and then place the bags in water that is hot but well below boiling point.

[Home Sous Vide Link/Recipes](#)

5.3

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23

Microwave Cooking

- Many foods can be baked or roasted in a **microwave oven**.
 - Do not give the same results as convection or conventional ovens because they cook food with waves of energy or radiation—microwaves—rather than with heat.

5.3

Chapter 5 | Kitchen Essentials: Part 2—Equipment and Techniques

24

Section 5.3 Summary



- ④ Heat is transferred to food in three ways:
 - Conduction
 - Convection
 - Radiation
- ④ Types of cooking methods include dry-heat cooking, moist-heat cooking, and combination-cooking methods.
- ④ Broiling, grilling, roasting, baking, sautéing, pan-frying, stir-frying, and deep-frying are kinds of dry-heat cooking.
- ④ Simmering, poaching, blanching, and steaming are techniques used in moist-heat cooking.
- ④ Braising and stewing are types of combination cooking.
- ④ To determine when food is done cooking, identify if the product has its desired texture and minimum internal temperature.