



Intermediate Cooking with Gas

Lesson 6: Sautéing

ADVANCED



Introduction

Welcome to Intermediate Cooking with Gas. Today's topic is sautéing. Once you learn about sautéing, you will learn how to cook with gas to make your own piccata dish.

This lesson can be completed in a classroom or at home. Your teacher will provide instructions for completing the assignment from home.

Opening Assessment

1. What does the French word "sauté" mean in English?
 - a. stirred
 - b. jumped
 - c. tossed
 - d. fried
2. What temperature should the range be set to while stir-frying?
 - a. medium-low
 - b. medium
 - c. medium-high
 - d. high
3. Which protein is prepared in a traditional Italian piccata?
 - a. beef
 - b. chicken
 - c. tofu
 - d. veal
4. How should the protein in a piccata dish be prepared?
 - a. brined
 - b. flattened
 - c. marinated
 - d. smoked
5. The BTU factor describes the:
 - a. heating content of the gas.
 - b. delivery of the gas.
 - c. cost of the gas.
 - d. temperature of the gas.

Understanding Your Gas Bill

Understanding what is on your gas bill can help you monitor your gas usage in and outside of the kitchen and find ways to save energy and gas. Below is an example of a gas bill from SoCalGas. Under the gas bill you will find an explanation of each section, from top to bottom.

1 ACCOUNT NUMBER 987 654 3210 3
SERVICE FOR
JOHN Q PUBLIC
123 TEST STREET
PLACENTIA CA 91870-1234

3 DATE MAILED Mar 19, 2019 Page 1 of 2
24 Hour Service
1-800-427-2200 English
1-800-342-4545 Español
1-800-252-0259 TDD
socialgas.com H

2 You are currently receiving the CARE discount. The discount now appears as a separate credit on your bill.

Account Summary

Amount of Last Bill \$115.70
Payment Received 03/08/19 THANK YOU - 115.70
Current Charges + 133.26
Total Amount Due \$133.26

5 **Current Charges**

Rate: GR - Residential Climate Zone: 2 Baseline Allowance: 55 Therms
Meter Number: 67915 (Next scheduled read date Apr 15 2019) Cycle: 10

Billing Period	Days	Meter Number	Current Reading	Previous Reading	Difference	x Factor	Billing BTU	x Factor	Total Therms
02/13/19 - 03/15/19	30	13767915	3619	3479	140	0.871	1,028		125

4 **Gas Usage History (Total Therms used)**

Month	Total Therms used	Daily average Therms	Days in billing cycle
Mar 18	104	3.5	30
Feb 19	109	3.8	29
Mar 19	125	4.2	30

6 **GAS CHARGES**

Customer Charge 30 Days x \$.16438
Gas Service (Details below) 125 Therms
Over Baseline
Therms used 70
Rate/Therm \$1.34843
Charge + \$94.39 = 150.27
Transportation Charge Adj 125 Therms x \$.00562 - .70
CARE Program Discount -30.90
Total Gas Charges \$123.60

7 **TAXES & FEES ON GAS CHARGES**

	Amount(\$)
State Regulatory Fee 125 Therms x \$.00166	.21
CARE Public Purpose Surcharge 125 Therms x \$.0768	9.45
Total Taxes & Fees	\$9.66

8 **Total Charges \$133.26**

Attractive finance rates are available for home energy improvements. Visit socialgas.com/financing

SoCalGas' gas commodity cost per therm for your billing period:
Mar.....\$.41230 Feb.....\$.34851

2 **Account Summary**

DATE DUE Apr 8, 2019
AMOUNT DUE \$133.26

3 **Current Charges**

Rate: GR - Residential Climate Zone: 2 Baseline Allowance: 55 Therms
Meter Number: 67915 (Next scheduled read date Apr 15 2019) Cycle: 10

4 **Gas Usage History (Total Therms used)**

5 **GAS CHARGES**

Customer Charge 30 Days x \$.16438
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Over Baseline
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SoCalGas' gas commodity cost per therm for your billing period:
Mar.....\$.41230 Feb.....\$.34851

8 **Account Summary**

DATE DUE Apr 8, 2019
AMOUNT DUE \$133.26

Please enter amount enclosed.
\$
Write account number on check and make payable to SoCalGas.

9999.1.2.2 1 oz.
JOHN Q PUBLIC
123 TEST STREET
PLACENTIA CA 91870-1234

SoCalGas
PO BOX C
MONTEREY PARK CA 91756-5111

80 9876543210 00013326 39 9876543210 0000175639

Image Credit: SoCalGas

Parts 1 & 3: Account Number and Amount Due

At the top of this bill is the account number and the address where the service is provided (1), and the date and the amount due for the **Current Billing Cycle** (3).

Part 2: Account Summary

Next you will find the **Account Summary** (2), which shows the amount of the last bill, information about the last payment received and the new charges for the current billing cycle.

Part 4: Gas Usage History

On the top right, you will find the **Gas Usage History** (4), which shows the gas usage history for the past 13 months. It is shown as a bar graph, and the table compares your current usage to last month and last year's usage during the same month. This information can be very useful when trying to determine what changes you can make to become more gas efficient.

Part 5: Current Charges

In the middle of the left column, you will find the **Current Charges** (5), which shows information about how the gas company provides its services, the dates of the billing period, the calculation of the total therms and the calculation of gas charges and taxes. The delivery of the gas (transportation) is included in the overall cost.

Therms are the standard unit of gas that gas companies use when determining a bill. One therm equals 100,000 BTUs. The total therms on the bill are calculated by multiplying the amount of gas used this billing period by the Billing Factor multiplied by the BTU Factor, or:

$$(Current\ Reading - Previous\ Reading) \times (Billing\ Factor) \times (BTU\ Factor) = Therms$$

BTU is short for British thermal unit. BTUs are used to measure the heat content of natural gas. It is defined as the amount of heat required to increase the temperature of one pound of water one degree Fahrenheit at the temperature at which water has its greatest density (~39°). One BTU is approximately the same amount of energy released by burning a match. The **BTU Factor** is used to express the heating content of the gas. The **Billing Factor** is used to account for the changes in delivery pressure, altitude and meter calibration. These adjustments are made to ensure the value of the natural gas is the same for all customers, no matter their location.

Part 8: Paperless Billing

At the bottom of the bill, you will find the payment stub to send in with the payment with a reminder about **Paperless Billing** (8). To save paper and postage, the account can be signed up for paperless billing on the online account.

It is important to know that consumer demand affects the average price of natural gas throughout the United States. Other factors that can affect the price include distribution costs, state regulations and competing suppliers.

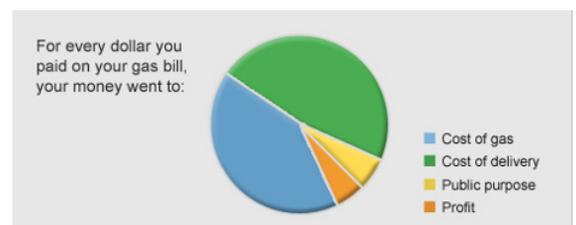


Image Credit: [SoCalGas](#)

The following slide shows the service territory of SoCalGas and includes some facts about the company.

WHO WE ARE...

SoCalGas & SDG&E Service Territory



SoCalGas x **Sempra Energy**

- **Largest natural gas distribution** utility in the US
- An active part of the community for more than **140 years**
- Serve **12 counties** (over 500 communities) and more than **21 million** people
- Over **5.8 million** gas meters
- More than **8,000 employed**

Image Credit: [SoCalGas](#)

Cooking with Natural Gas

Knowing the amount of time it takes for your equipment to heat up is essential to energy-effective cooking. Before modern gas cooking appliances were available, chefs would turn ranges on in the morning and leave them on all day so they were hot and ready to use when an order came in. Today, this is a costly practice due to high energy costs.

A benefit of modern natural gas cooking appliances is the relatively short preheat time. Because of this, burners can be turned on when you are ready to cook and turned off immediately after. Simply turning off gas or powering down to idle mode kitchen appliances that are not in use can help reduce wasted gas, higher gas bills and unnecessary heat in the kitchen.

Cooking Methods

There are three types of cooking methods that utilize natural gas:

1. **Moist cooking** involves cooking with moisture in either liquid or steam form.
2. **Dry cooking** involves cooking without any moisture.
3. **Combination cooking** combines moist and dry heat cooking.

Today, you will be learning about and preparing food using a dry cooking method.

Dry Cooking: Sautéing

Dry cooking methods include broiling, grilling, griddling, roasting, baking, sautéing and deep frying. Each method utilizes the circulation of hot air or contact with fat to transfer heat in order to cook the food. This lesson will utilize a natural gas wok range and the sautéing cooking method.

Sauté is a French word that means “jumped.” Sautéing is generally performed in a shallow sauté pan over a burner on a natural gas range. This dry cooking method relies on a small amount of fat at a medium-high temperature to transfer heat to the food.

In stir-frying, small pieces of food are quickly cooked over high heat, stirring constantly with a shovel (wok spatula). A special pan called a wok is used. A wok is a round-bottomed pan and sits over a special burner or a special wok range like the one in the photograph.



Saute Pan

To sauté, a pan is placed on top of a burner set to medium-high. The pan is allowed to heat up before adding the fat. Only after the fat has been heated should food be added to the pan. Once added to the pan, the food can be gently tossed a few times. In order to keep the contents in the pan at a high temperature, the pan should not be overcrowded or the food tossed too frequently. If the temperature dips too low, the food will simmer in its own juices. If desired,

food can be browned in the pan to create a distinct aroma and flavor. Browning occurs at temperatures of 300°F or higher, when the amino acids and sugars in the food turn brown. Sautéing requires a small amount of fat – butter or oil for cooking, browning and flavor.

In this lesson, you will learn how to make a piccata dish. In Italy, the traditional piccata dish is made with veal cutlets which are flattened with a meat mallet. These cutlets are then breaded with flour, eggs, milk and breadcrumbs. Lastly, the breaded cutlets are sautéed in the hot fat until browned on both sides. The cooked protein is then simmered in a light buttery or acidic sauce. Variations of the traditional veal piccata can be made with alternate proteins like chicken thighs, turkey breasts, fish and tofu.

Foods like small cuts of meat, scallops, zucchini, cauliflower, onions and peaches cook well when sautéed. You will learn how to sauté, as well as use other forms of dry heat, to cook various proteins, vegetables and starches throughout your lessons on dry cooking.



Natural Gas Range

Instructor Demonstration

Watch the instructor demonstration on proper natural gas range safety and how to make a piccata dish. Answer the following questions as you watch the demonstration.

- What safety tips did the instructor give during the demonstration?
- How high is the burner set for sautéing?
- How thin did the instructor flatten the chicken?
- In what order did the instructor bread the chicken?
- How did the instructor determine how long to sauté the chicken?
- What cooking tips did the instructor give during the demonstration?

Selecting and Preparing a Recipe

The following section can be completed at home if the preparing and cooking can be performed safely. Residential and commercial cooking equipment vary; while the information focuses on natural gas equipment, electric ranges and stoves may also be used to complete the cooking assignment.

Now you are going to make your own piccata dish. Once cooked, the piccata dish can be served with a side of pasta, a salad or cooked vegetables. You can optionally substitute tofu for a vegetarian option.

Your teacher will review your recipe and dish based on the criteria listed below. If you are learning remotely, your teacher will provide you with instructions on how to submit your recipe and images or video of your completed dish. .

Criteria	Excellent 3	Proficient 2	Emerging 1
Procedure	clearly followed given instructions and the example provided in the demonstration	somewhat followed given instructions and/or the example provided in the demonstration	did not follow given instructions and/or the example provided in the demonstration
Content (submitted photos, procedure, videos, etc.)	content and explanations were thorough and well detailed	included content and explanation but included few specific details	included little to no additional content or explanations and/or no specific details
Organization	organized when preparing and making their recipe	somewhat organized when preparing and/or making their recipe	not organized when preparing and/or making their recipe

Create Your Recipe

For this recipe you will need to choose one item from the fat and protein categories. You will also need the list of seasonings, breading ingredients and any optional sauce ingredients. You can choose to add any additional toppings or flavors based on your dietary preferences, restrictions or allergies and available ingredients. Before starting to cook, it is important to have all of your ingredients, tools and equipment prepared ahead of time, what chefs call “mise en place” or “everything in its place.”

Select a fat:	Select a protein:	Select seasonings:	Breading ingredients:	Optional sauce ingredients:
canola	chicken	salt	flour	butter
olive oil	turkey	pepper	eggs	lemon
butter	veal		milk	dry white wine
	tofu		bread crumbs	broth
				mushrooms
				capers

Safety first:

- Always keep a Class ABC fire extinguisher nearby.
- Turn the gas range off once you are done stir-frying.
- Turn the sauté pan handle inward on the range top.
- Never use wet or moist potholders, oven mitts or towels, as this will conduct heat, burning your hands.
- Practice knife safety when cutting the vegetables and use knives that are properly sharpened.

Equipment:

- Saute pan
- Boning knife
- Cutting board
- Gas range
- Tongs
- Meat mallet

Ingredients:

- Choice of fat
- Choice of protein
- Seasoning
- Breading ingredients
- Choice of optional sauce ingredients

Procedure:

1. Flatten each piece of protein with a meat mallet.
2. Season protein with salt and pepper.
3. Bread protein in the following order:
 - a. Flour
 - b. Egg wash (mixture of eggs and milk)
 - c. Bread crumbs
4. Place the sauté pan over medium-high heat.
5. Once the pan is hot, add the fat.
6. Heat the fat until it shimmers.
7. Place protein in the pan and pan-fry until golden.
8. Turn protein over and brown the other side.
9. Add additional fat, lemon juice, capers or other ingredients and simmer the protein until all the liquid starts to slightly thicken.
10. Remove the finished protein from the pan and serve over pasta or other starch with accompaniments.

Tips:

- Be careful not to tear the protein by flattening too much.
- Avoid the following to keep the temperature of the fat in the pan high enough to pan-fry (and not simmer):
 - » overcrowding the pan
 - » stirring or tossing too much
- The key to sautéing is using the right amount of fat in the pan and not heating the fat too hot so it will not burn.
- Let the protein rest in the pan to create a crust and brown before turning it.

Activity

After you finish sautéing your piccata dish, pretend you are a food critic writing a review for a food magazine. Your review should highlight the dish's presentation, taste and texture. Does the dish look appetizing? Were you excited when you saw the completed dish? Include details about the flavors and seasonings in the dish. Use colorful adjectives that will help the reader feel what it was like to eat the food. Are there multiple textures in the dish, and do they work well with one another?

bean sprouts
carrots
snap peas

bell peppers
cauliflower
spinach

bok choy
green beans
tomatoes

broccoli
mushrooms
zucchini

cabbage
onions

Final Assessment

1. What does the French word “sauté” mean in English?
 - a. stirred
 - b. jumped
 - c. tossed
 - d. fried
2. What temperature should the range be set to while sautéing?
 - a. medium-low
 - b. medium
 - c. medium-high
 - d. high
3. Which protein is prepared in a traditional Italian piccata?
 - a. beef
 - b. chicken
 - c. tofu
 - d. veal
4. How should the protein in a piccata dish be prepared?
 - a. brined
 - b. flattened
 - c. marinated
 - d. smoked
5. The BTU factor describes the:
 - a. heating content of the gas
 - b. delivery of the gas
 - c. cost of the gas
 - d. temperature of the gas

Intermediate Cooking with Gas—Advanced

Lesson 6: Sautéing

Teacher Guide

(1-2 class sessions depending on setting)

Introduction

This lesson covers an intermediate understanding of sautéing. Then, students will learn how natural gas is used on a natural gas range to make a piccata dish. Keep in mind that students may have dietary preferences, restrictions or allergies that may need to be accommodated in order for them to complete the recipe. Note that students may have different types of appliances at home, such as an electric or induction range, which will not prevent them from completing the assignment. If the student is preparing food at home, ensure that appropriate adult supervision will be available.

This lesson could be completed in a classroom or at home. Suggestions and instructions will be given for both scenarios.

Opening Assessment Answer Key (3 minutes)

Use these questions to obtain a baseline for what your students know before beginning the lesson. The correct answers are highlighted.

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5. The BTU factor describes the:
 - a. cost of the gas
 - b. delivery of the gas
 - c. heating content of the gas
 - d. temperature of the gas

Understanding Your Gas Bill (5 minutes)

Students will read about how to read a gas bill to find ways to save energy and gas. The following questions could be used for a class discussion or given to students to complete individually.

- What are therms and BTUs?
- How is your gas bill calculated?
- How do you read the Gas Usage History bar graph and table?

Cooking with Natural Gas (5 minutes)

Students will read about energy efficient cooking. The following questions could be used for a class discussion or given to students to complete individually.

- What is an advantage of natural gas over electric and induction ranges?
- How much preparation should be done before cooking?
- How can you monitor your gas bill to see if you are reducing wasted gas?

Cooking Methods (1 minute)

Students will understand that there are three cooking methods that utilize natural gas: moist cooking, dry cooking and combination cooking.

Dry Cooking: Sautéing (5 minutes)

Students will read about cooking with dry heat and the sautéing technique. The following questions could be used for a class discussion or given to students to complete individually..

- What are the benefits to cooking with dry heat?
- How is stir-frying different from sautéing? How is it similar?
- How should the protein be prepared for a piccata dish?

Instructor Demonstration (10 minutes)

The demonstration can either be performed in class or recorded for remote use. If the demonstration is done in person, prepare the proteins, seasonings and other optional ingredients while the students complete their readings so that the proteins are ready in time for your demonstration.

You may also consider prepping the proteins and extra ingredients for student use before class or while students complete their readings. This way, the students may begin breading the protein directly following the demonstration rather than spending time flattening the protein and finding seasonings and optional ingredients after the demonstration.

The demonstration should include:

- how a natural gas range works
- safety tips when using a natural gas range
- how to pan-fry, including tips on how high to have the flames and how much fat to use
- benefits of using pan-frying as a cooking technique
- knife techniques and safety when cutting ingredients
- using a mallet to flatten the protein
- how to bread the protein
- how to sauté the protein, noting how to check for doneness
- benefit of not overcrowding the pan
- benefit of flattening the protein
- finishing the piccata dish with a sauce and incorporating other optional ingredients

Students will use the following questions as a guide to either a class discussion after the demonstration or note taking during the demonstration:

- What safety tips did the instructor give during the demonstration?
- How much fat did the instructor put into the wok?
- How high did the instructor have the flame?
- How did the instructor determine how flat the protein should be?
- What cooking tips did the instructor give during the demonstration?
- How did the instructor bread the protein?
- What cooking tips did the instructor give during the demonstration?

Selecting and Preparing a Recipe (20 minutes)

If the students will be cooking in the classroom, ensure that the ingredients are available to the students ahead of time. Make sure that student allergies, dietary restrictions and preferences are taken into account. Also be sure to plan a few minutes at the end of class for cleanup.

If the students will be cooking at home, be sure to provide the list of ingredients or the “mise en place” ahead of time to give the students time to assemble the ingredients. Take into consideration the time the recipe typically takes to cook and the ability for students to purchase their ingredients from the grocery store.

Students will use the instructor demonstration as a guide to cook their own piccata dish. Students will select a fat, a protein and optional sauce ingredients from a list in order to complete their recipe.

Students cooking at home can submit a description of the ingredients and procedure they used along with pictures of their completed dishes or a video of themselves cooking the recipe. Be sure to share instructions with your students on what to submit and how to share it with you.

Scoring Rubric:

Criteria	Excellent 3	Proficient 2	Emerging 1
Procedure	clearly followed given instructions and the example provided in the demonstration	somewhat followed given instructions and/or the example provided in the demonstration	did not follow given instructions and/or the example provided in the demonstration
Content (submitted photos, procedure, videos, etc.)	content and explanations were thorough and well detailed	included content and explanation but included few specific details	included little to no additional content or explanations and/or no specific details
Organization	organized when preparing and making their recipe	somewhat organized when preparing and/or making their recipe	not organized when preparing and/or making their recipe

Activity (5 minutes or as homework)

This activity is provided to be used either in the classroom during any down-time, or as homework. Students will write a review of their dish for a food magazine. They will highlight the dish's presentation, taste and texture using colorful adjectives that will help the reader feel what it was like to eat the food.

Final Assessment: Answer Key (3 minutes or as homework)

Use these questions in conjunction with the discussion questions in each section to formatively assess student growth over the course of the lesson. Address any student misconceptions that remain at the end of the lesson. Consider having students compare their opening assessment with their final assessment to see how their understanding of cooking with gas improved over the course of the lesson.

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