



**SoCalGas**<sup>TM</sup>

# Introduction to Cooking with Gas

Lesson 6: Sautéing

**BEGINNER**



## Introduction

Welcome to Introduction to 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 fajitas.

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 sautéing?
  - a. medium-low
  - b. medium
  - c. medium-high
  - d. high
3. Which is the correct procedure while sautéing?
  - a. heat pan ⇒ add fat ⇒ add vegetables
  - b. add fat ⇒ heat pan ⇒ add vegetables
  - c. heat pan ⇒ add vegetables ⇒ add fat
  - d. add fat ⇒ add vegetables ⇒ heat pan
4. Which strategy can help you reduce your natural gas bill?
  - a. cook one meal at a time
  - b. cook with dirty equipment
  - c. prepare food while cooking
  - d. turn range on only when ready to cook
5. How many British thermal units are equal to one therm?
  - a. 100 BTUs
  - b. 1,000 BTUs
  - c. 10,000 BTUs
  - d. 100,000 BTUs

## 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. Since SoCalGas is one of the largest natural gas distribution utilities in the United States, more people receive their gas bills from SoCalGas than any other company in the United States.

### WHO WE ARE...

**SoCalGas & SDG&E Service Territory**



- **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](#)



Below is an example of a natural gas bill from SoCalGas, followed by an explanation of each section, from top to bottom.

**SoCalGas** A Sempra Energy utility

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

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

**Account Summary**

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

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

**Current Charges**

Rate: GR - Residential Climate Zone: 2 Baseline Allowance: 55 Therms  
Meter Number: 13767915 (Next scheduled read date Apr 15 2019) Cycle: 10

Billing Period	Days	Meter Number	Current Reading	Previous Reading	Difference	Billing x Factor	BTU x Factor	Total Therms
02/13/19 - 03/15/19	30	13767915	3619	3479	140	0.871	1.028	125

**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

**TAXES & FEES ON GAS CHARGES**

	Amount (\$)
State Regulatory Fee 125 Therms x \$.00166	.21
CARE Public Purpose Surcharge 125 Therms x \$.07568	9.45
Total Taxes	9.66
Total Gas Charges	\$123.60
<b>Total Charges</b>	<b>\$133.26</b>

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

Month	Total Therms used
Mar 18	104
Feb 19	109
Mar 19	125

Total Therms used 104  
Daily average Therms 3.5  
Days in billing cycle 30

Attractive finance rates are available for home energy improvements. Visit [socialgas.com/financing](http://socialgas.com/financing)

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

PLEASE KEEP THIS PORTION FOR YOUR RECORDS. (FAVOR DE GUARDAR ESTA PARTE PARA SUS RECORDS.)  
PLEASE RETURN THIS PORTION WITH YOUR PAYMENT. (FAVOR DE DEVOLVER ESTA PARTE CON SU PAGO.)

**SoCalGas** A Sempra Energy utility

Save Paper & Postage  
PAY ONLINE [socialgas.com](http://socialgas.com)

ACCOUNT NUMBER 987 654 3210 3

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](http://SoCalGas)

1. **Account Number** — At the top of this bill is the account number and the address where the service is provided.
2. **Account Summary** — This shows the amount of the last bill, information about the last payment received and the new charges for the current billing cycle.
3. **Due Date** — This section shows the date and the amount due for the current billing cycle.
4. **Gas Usage History** — On the top right the usage history for the past 13 months is shown as a bar graph. The table compares the 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.
5. **Current Charges** — In the middle of the left column, this section 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.
6. **Paperless Billing** — At the bottom of the bill, you will find the payment stub to send in with the payment with a reminder about this service. To save paper and postage, the account can be signed up for paperless billing on the online account.

**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.

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.

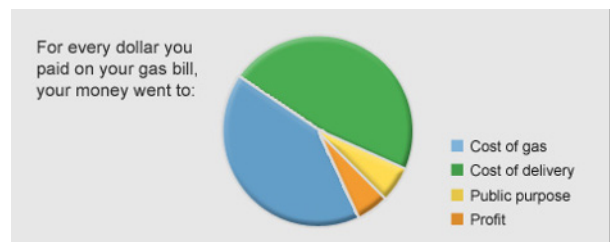


Image Credit: [SoCalGas](#)

## 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 a relatively short preheating time. Because of this, burners can be turned on when you are ready to cook and turned off immediately after. Simply turning off gas kitchen appliances that are not in use can help reduce gas waste and higher gas bills. And proper venting removes heat and the combustion products along with cooking odors, grease and moisture produced during cooking.

The best way to monitor your gas usage is to keep an eye on the Gas Usage History bar graph and table, which on the example gas bill are in the upper-right corner. There you will be able to compare the daily average therms used during the current month and the previous month. If you spend a month reducing wasted gas by ensuring everything is “mise en place” and turning off unused appliances, you should be able to see the difference in the bar graph and table. With decreased gas use, the bar will be shorter and the daily average therms used will be lower.

## 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 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, like the one in the photo. This dry cooking method relies on the small amount of fat at a medium-high temperature to transfer heat to the food.

## Instructor Demonstration

Watch the instructor demonstration on proper natural gas range safety and how to sauté peppers and onions. Answer the following questions as you watch the demonstration.

- What safety tips did the instructor give during the demonstration?
- How much fat was added to the pan?
- When did the instructor add the vegetables to the pan?
- How did the instructor safely toss the vegetables?
- How did the instructor determine how long to cook the peppers and onions?
- 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 fajitas using peppers and onions. Once cooked, the peppers and onions can be served on a warm tortilla or with a side of rice. You can optionally top the fajitas with beans, sauces or seasoning.

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 grain, one item from the onion and one item from the fat categories. You will also need tri-colored bell peppers. You can choose to add any additional toppings or flavors based on your preference, dietary restrictions, 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 peppers:	Select an onion:	Select a fat:	Select a grain:	Select additional toppings:	
red, yellow and green bell peppers	yellow onion red onion white onion	olive oil canola oil peanut oil	flour tortilla corn tortilla brown rice white rice	black beans paprika pinto beans salsa guacamole jalapeño pepper poblano pepper lime sour cream corn	chili powder onion powder garlic powder cayenne pepper salt pepper cheese

### Safety first:

- Always keep a Class ABC fire extinguisher nearby.
- While flipping the sauté pan, be sure to move the pan back far enough to catch the falling food. You can practice by tossing dried beans in a cold pan.
- Turn the gas range off once you are done sautéing.
- Use clarified butter instead of butter to avoid burning the milk solids.
- 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:

- French knife (chef's knife) or paring knife
- Cutting board
- Gas range
- Large sauté pan
- Spatula
- Can opener

### Ingredients:

- Choice of grain
- Tri-colored bell peppers (red, yellow and green)
- Choice of onion
- Choice of fat
- Choice of optional toppings

### Procedure:

1. Rinse peppers in cold water.
2. **Julienne** cut the peppers and the onions. Julienne cut means to slice into thin, even strips.
3. Place the sauté pan over medium-high heat.
4. Once the pan is hot, add just enough fat to cover the bottom of the pan.
5. Heat the fat until it shimmers.
6. Add peppers and your choice of onions to the pan.
7. Add any additional spices and/or chili peppers to the pan, being careful not to overcrowd.
8. Sauté, occasionally tossing the vegetables, until cooked through, about 5-7 minutes.
9. Turn off the range.
10. Serve vegetables with your choice of grain and selected additional toppings.



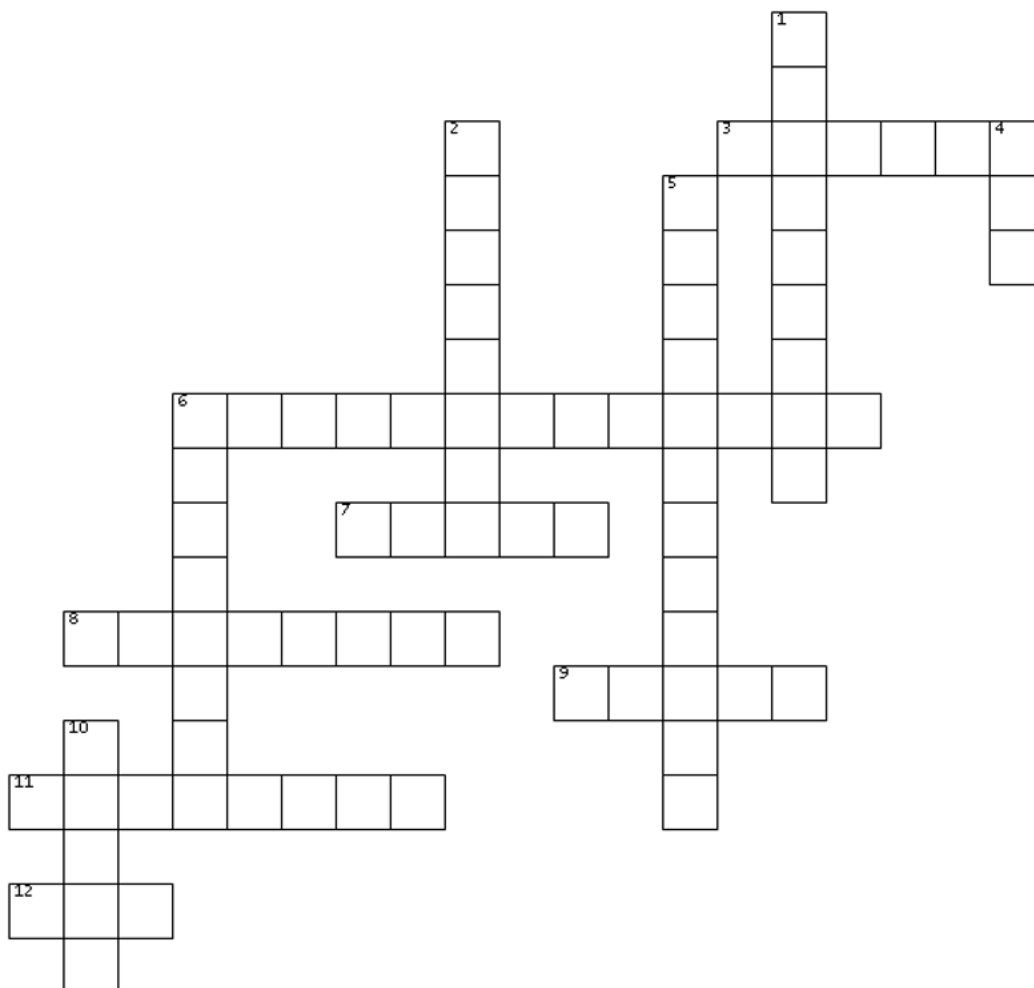
*A julienne cut red pepper*

### Tips:

- Avoid the following to keep the temperature of the fat in the pan high enough to sauté (and not simmer):
  - » overcrowding the pan
  - » stirring or tossing too much
  - » adding vegetables too soon
- The key to sautéing is using high heat and a small amount of fat to cook vegetables quickly. Be careful to not use too much fat.
- Vegetables can be cooked longer to achieve a desired amount of browning.
- If you want to try tossing vegetables, while gripping the handle, sharply twist your wrist upward. Move the pan backward to catch the vegetables as they fall.

## Activity

After you finish sautéing your fajitas, complete this crossword puzzle.



### Across

3. The French word "sauté" literally means \_\_\_\_\_ in English.
6. Accounts for changes in delivery
7. One \_\_\_\_\_ is equal to 100,000 BTU.
8. \_\_\_\_\_ demand affects the average price of natural gas throughout the United States.
9. Cooking with moisture
11. Gas usage is displayed in a \_\_\_\_\_.
12. British thermal unit abbreviation

### Down

1. Expresses the heating content of the gas
2. Slice into thin, even strips
4. Cooking without moisture
5. One reason the temperature in the pan might decrease
6. Occurs at temperatures of 300°F and higher
10. Cook quickly at a medium-high temperature in a small amount of fat

## 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 is the correct procedure while sautéing?
  - a. heat pan ⇒ add fat ⇒ add vegetables
  - b. add fat ⇒ heat pan ⇒ add vegetables
  - c. heat pan ⇒ add vegetables ⇒ add fat
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4. Which strategy can help you reduce your natural gas bill?
  - a. cook one meal at a time
  - b. cook with dirty equipment
  - c. prepare food while cooking
  - d. turn range on only when ready to cook
5. How many British thermal units are equal to one therm?
  - a. 100 BTUs
  - b. 1,000 BTUs
  - c. 10,000 BTUs
  - d. 100,000 BTUs



# **Introduction to Cooking with Gas—Beginner**

## **Lesson 6: Sautéing**

### **Teacher Guide**

(1-2 class sessions depending on setting)

## **Introduction**

This lesson covers a basic understanding of sautéing. Students will learn how natural gas is used on a range to sauté and cook peppers and onions. 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.

1. What does the French word "sauté" mean in English?
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  - d. fried
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5. How many British thermal units are equal to one therm?
  - a. 100 BTUs
  - b. 1,000 BTUs
  - c. 10,000 BTUs
  - d. 100,000 BTUs

## Understanding Your Gas Bill (10 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?
- What are the factors that can affect the price of natural gas?
- 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 ranges?
- How much preparation should be done before cooking?
- How can you monitor your gas bill to see if you are reducing wasted gas?
- How can bills be reduced outside of the kitchen?

## Cooking Methods (2 minutes)

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 does the sauté method work?
- What is the difference between sautéing and pan frying?

## Instructor Demonstration (7 minutes)

The demonstration can either be performed in class or recorded for remote use. If the demonstration is done in person, consider slicing the peppers and onions and prepping the tortillas, rice and other optional ingredients while the students complete their readings so that the peppers and onions can be ready in time for your demonstration.

You may also consider prepping the vegetables and extra ingredients for student use before class or while students complete their readings. This way, the students may begin cooking directly following the demonstration rather than spending time slicing the vegetables after the demonstration. When showing the students about the mise-en-place vegetables, be sure to tell them that the vegetables are julienne cut, i.e., sliced into thin, even strips.

The demonstration should include:

- how a natural gas range works
- safety tips when using a natural gas range
- how to sauté, including tips for how high to have the flames, how much fat to use and how to toss the vegetables
- benefits of using sautéing as a cooking technique
- how to cook peppers and onions, noting how to check the peppers and onions for doneness
- benefit of not overcrowding or tossing too much
- finishing the fajitas with a tortilla or rice and incorporating other optional ingredients
- knife techniques and safety when cutting 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 sauté pan?
- How high did the instructor have the flame?
- How did the instructor determine how long to cook the peppers and onions?
- What cooking tips did the instructor give during the demonstration?

## Selecting and Preparing a Recipe (20 minutes)

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.

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 fajitas. Students will select peppers, an onion, a fat, a grain and optional flavorings and toppings 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.

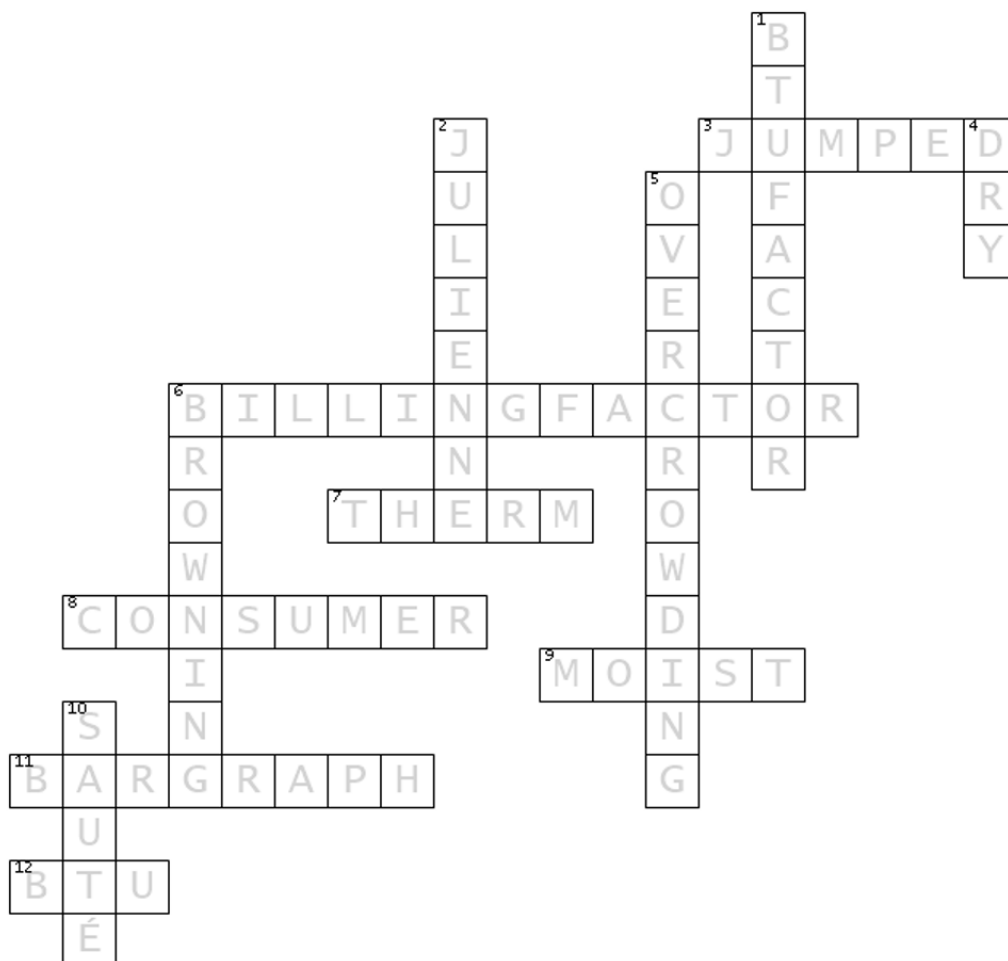
Scoring Rubric:

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. In this activity, students will use clues to complete this crossword puzzle.



### Across

3. The French word "sauté" literally means **jumped** in English.
6. Accounts for changes in delivery **Billing Factor**
7. One **therm** is equal to 100,000 BTU.
8. **Consumer** demand affects the average price of natural gas throughout the United States.
9. Cooking with moisture **Moist**
11. Gas usage is displayed in a **bar graph**.
12. British thermal unit abbreviation **BTU**

### Down

1. Expresses the heating content of the gas **BTU Factor**
2. Slice into thin, even strips **Julienne**
4. Cooking without moisture **Dry**
5. One reason the temperature in the pan might decrease **Overcrowding**
6. Occurs at temperatures of 300°F and higher **Browning**
10. Cook quickly at a medium-high temperature in a small amount of fat **Sauté**

## 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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**Blue  
flame**