



Coffee Break: What's in your cup? - Leader's guide

Objectives:

- Trace the history of coffee as one of the world's most popular drinks
- Review the steps in coffee production
- Compare coffee grown in different locations or made by different methods

Materials for the lesson

- Coffee Break: Leader's Guide. One per leader
- Coffee Break: Cross word puzzle. One per member

Optional Resources

- Coffee Break: PowerPoint presentation <http://extension.oregonstate.edu/fch/fce-lessons>
- Supplies and equipment for coffee tasting and comparisons. There are many options for this activity based on the available coffee supplies and equipment available to you. Water to sip between tastes of coffee is also suggested.

Notes to the Leader:

The PowerPoint presentation is optional but can help provide interest for the lesson. Some paragraphs in this leader guide have a number at the beginning that corresponds to the number on the PowerPoint slide. The PowerPoint could be shown on a computer if you have internet access, downloaded and saved to a computer, disk or flashdrive to be shown during the lesson or printed to be shown during the presentation.

There are activities for participants incorporated into this lesson. The instructions for the activities are contained in boxes. The supplies needed for the activities are listed under Optional Resources above.

Notes to the leader:

Below are a few questions that you could ask participants to gather their attention and engage them in the lesson. The answers to the questions are in parenthesis following the question.

Before we start, let's see how much you know about current coffee trends.

1. Which is cheaper, a gallon of gas or a gallon of coffee?

(If coffee is \$1.00 for an 8 ounce cup at a restaurant, it still costs \$16.00 /gallon)

2. Why is coffee sometimes called "a cup of Joe?"

(Many people believe it is because American soldiers, referred to as G.I.Joes, consumed so much coffee on deployment. However, some sources suggest that it is a shortened version of what coffee was called in earlier centuries, first *java-mocha* which indicates a blend of coffees based on the locations they were grown, then *jamoka* and finally shortened to *joe*.

3. What town in the US has the most coffee shops?

Seattle, home of Starbucks, the most popular chain of coffee shops in the US. Dunkin Donuts is the next most prolific coffee shop, but has a higher concentration in the eastern US.

Introduction

(1) Coffee Break

(2) Coffee is the second most traded commodity and the third most consumed beverage in the world. More than half of all Americans over the age of 18 drink coffee every day. Only water and tea are more popular beverages. Consumers in the US spend over \$40 Billion on coffee each year.

History of Coffee

(3) It is said that hundreds of years ago, in the highlands of Ethiopia, the goat herder Kaldi discovered coffee after noticing that his goats ate berries from a certain tree and then became so energetic that they did not want to sleep at night.

Kaldi reported his findings to the abbot of the local monastery who made a drink with the berries and discovered that it kept him alert for the long hours of evening prayer. The abbot shared his discovery with the others and slowly knowledge of the energizing berries began to spread.

(4) Coffee cultivation and trade began on the Arabian Peninsula in the 15th century and by the 16th century it was known in Persia, Egypt, Syria, and Turkey.

Coffee was not only enjoyed in homes, but also in the many public coffee houses. Not only did the patrons drink coffee and engage in conversation, but they also listened to music, watched performers, played chess and kept current on the news. Coffee houses quickly became such an important center for the exchange of information that they were often referred to as "Schools of the Wise."

By the 17th century, coffee had made its way to Europe and was becoming popular across the continent. Some people reacted to this new beverage with suspicion or fear, calling it the "bitter invention of Satan." The local clergy condemned coffee when it came to Venice in 1615. The controversy was so great that Pope Clement VIII was asked to intervene. He decided to taste the beverage for himself before making a decision, and found the drink so satisfying that he gave it papal approval.

(5) Despite such controversy, coffee houses were quickly becoming centers of social activity and communication in the major cities of Europe. In England "penny universities" sprang up, so called because for the price of a penny one could purchase a cup of coffee and engage in stimulating conversation.

Coffee began to replace the common breakfast drink beverages of the time, beer and wine! Those who drank coffee instead of alcohol began the day alert and energized, and not surprisingly, the quality of their work was greatly improved.

By the mid-17th century, there were over 300 coffee houses in London, many of which attracted like-minded patrons, including merchants, shippers, brokers and artists. Many businesses grew out of these specialized coffee houses. Lloyd's of London, for example, came into existence at the Edward Lloyd's Coffee House.

(6) In the mid-1600's, coffee was brought to New Amsterdam, a location later called New York by the British. Though coffee houses rapidly began to appear, tea continued to be the favored drink in the New World until 1773, when the colonists revolted against a heavy tax on tea imposed by King George III. The revolt, known as the Boston Tea Party, would forever change the American drinking preference to coffee. Thomas Jefferson declared "Coffee - the favorite drink of the civilized world."

As demand for the beverage spread, there was fierce competition to cultivate coffee outside of Arabia. The Dutch started seedlings on the island of Java in what is now Indonesia.

In 1714, the Mayor of Amsterdam presented a gift of a young coffee plant to King Louis XIV of France. The King ordered it to be planted in the Royal Botanical Garden in Paris. In 1723, a young naval officer, Gabriel de Clieu obtained a seedling from the King's plant. Despite a challenging voyage — complete with horrendous weather, a saboteur who tried to destroy the seedling, and a pirate attack — he managed to transport it safely to Martinique.

Once planted, the seedling not only thrived, but is credited with the spread of over 18 million coffee trees on the island of Martinique in the next 50 years. Even more incredible is that this seedling was the parent of all coffee trees throughout the Caribbean, South and Central America.

The famed Brazilian coffee owes its existence to Francisco de Mello Palheta, who was sent by the emperor to French Guiana to get coffee seedlings. The French were not willing to share, but the French Governor's wife, captivated by his good looks, gave him a large bouquet of flowers before he left — buried inside were enough coffee seeds to begin what is today a billion-dollar industry.

Missionaries and travelers, traders and colonists continued to carry coffee seeds to new lands, and coffee trees were planted worldwide. Plantations were established in magnificent tropical forests and on rugged mountain highlands. Some crops flourished, while others were short-lived. New nations were established on coffee economies. Fortunes were made and lost. By the end of the 18th century, coffee had become one of the world's most profitable export crops. After crude oil, coffee is the most sought commodity in the world.

Coffee production

(7) Today coffee is grown in many countries around the world between the tropics of Capricorn and Cancer, the tropical section of the world known as the "bean belt." Coffee grows best where there is lots of rain, rich soil and 65' – 75'f degrees year-round. The top coffee producing countries are Brazil, Colombia, Vietnam, Indonesia, Ethiopia, Honduras, India, Guatemala, Mexico, Uganda and Peru. In 2001 Brazil introduced a coffee-scented postage stamp to promote its major export crop.

(8) There are many varieties of coffee, but *Arabica* and *Robusta* are by far the most common. *Arabica* is more difficult to grow, requiring moderate temperatures and more moisture, but has a smoother flavor that is often preferred. It makes up the majority of the coffee crop. *Robusta*

coffee is hardier, growing well at warmer temperatures and lower elevations but results in a stronger flavored brew.

Coffees take on many characteristics from the location where they are grown. The makeup of the soil, the water, and amount of sunlight all affect the subtle flavors in the final cup of coffee. Trained coffee tasters can identify the country and sometimes the area where the coffee was grown by subtle differences in its flavor and aroma after it is brewed into a drink.

Notes to the leader:

Coffee Tasting activity

There are many options for offering a coffee tasting activity for your group. This can be an important part of the lesson.

Here are some suggestions.

1. Purchase coffees that list a single country of origin on the label and brew them in the same way to compare them for flavor.
2. Using one source of coffee, prepare it in a variety of coffee makers including electric and non-electric or more than 1 type of electric coffee maker. You could also compare the results of paper versus reusable filters.
3. Provide instant coffee to compare to brewed coffee.
4. Compare cold brew versus hot brewed coffee from the same ground coffee. (To cold brew coffee, allow 1 part ground coffee and 3 parts cold water to steep in the refrigerator for 12 or more hours. Filter out grounds. This will most likely require the addition of water to make it the desired strength for drinking. A French press coffee maker could be used for this process.)

Coffee tasting techniques.

Instruct class participants to smell or "nose" each coffee sample before tasting.

The aroma is a significant portion of the flavor of coffee.

Then have them slurp a small amount of coffee into their mouths with plenty of air, so that the flavors of the coffee are distributed across their taste buds and to the back of the tongue. Tasting and comparing coffee is called "cupping." Encourage participants to share what flavors they can detect in the coffee they have sampled.

Suggest some terms such as: earthy, bitter, burnt, sweet, dry, fruity, sharp, spicy, nutty or acidic. When professional tasters sample coffees, they spit the mouthful out after tasting so they don't consume too much caffeine.

(9) Commercial coffee plants are started in nurseries and set out in the field after several months. Coffee trees take between 4 and 6 years of growth before they begin producing bunches of green cherries that turn red when ripe. The cherries in each bunch ripen at different times, so most coffee is harvested by hand. However, there are advances in mechanical harvesting that are making it an effective alternative to hand picking.

(10) Traditionally coffee grew as part of the undergrowth under larger trees which provided the coffee trees with partial shade. This allowed a rich biodiversity of birds and other animals to

survive. The variety of plants prevented excessive soil erosion. Today, many commercial crops are grown in cleared fields in direct sunlight. The plants in direct sun have proven to be more productive but require additional fertilization and water to maintain their productivity.

Coffee trees could grow to heights of 40 feet but are usually kept pruned so that pickers can reach the fruit from the ground. Each cherry contains 2 beans that are flat on one side where they rest against each other. The exception is the pea berry. Occasionally only one of the seeds develops in the coffee cherry and the result is that the single seed is round. These peaberries are hand sorted and roasted separately. They reportedly result in a better tasting coffee since they roast more evenly because of their shape. Each tree produces enough for one or two pounds of ground coffee each season.

(11) Once picked, the coffee cherries are either wet or dry milled. Dry milling is the traditional method where coffee cherries are spread out in the sun to dry. They are raked regularly for increased air circulation. If wet milled, the freshly picked cherries are run through a pulping machine that removes the skin and pulp from the bean. They are then allowed to soak in water in large vats for 12-48 hours and then rinsed and dried. Removing the pulp speeds the drying process and produces a better quality product.

When coffee beans are dry, they are run through another machine that rubs off any remaining husks or hulls that remain on the beans. They are then sorted by size, checked for damage and packed into burlap sacks, or more recently plastic lined containers, and shipped to the country that will roast, grind and sell them to local consumers.

There is one more step in the case of a very limited amount of coffee that results in that coffee being the most expensive coffee sold.

On the islands of Java and Sumatra, the Asian palm civet lives. This cat-like animal eats the raw coffee cherries, but cannot digest the seeds in them. The animal's droppings, or "scat," is collected and the coffee beans are removed, cleaned and sold as *Kopi Luwak*, a specialty coffee. The digestive juices of the palm civet partially break down the coffee bean and reportedly improve the flavor of the resulting coffee. Needless to say, this process results in a limited amount and very expensive coffee.

More recently, Jacu birds, a pheasant-like bird in Brazil have played the same role as the palm civet, selecting the most juicy and ripe berries to consume and partially processing them in their digestive system before returning them to the farmer for cleaning and drying. One farmer noted that the most difficult part of this method of coffee processing was convincing the coffee plantation's employees to search for and collect the bird droppings.

Storage

(12) Green coffee beans can be stored up to one year and still be considered a fresh crop. Roasted coffee has a relatively short shelf life before the oils react with air and take on a bitter taste. This is the main reason that coffee is shipped to the country of consumption before it is roasted. Darker

roasted coffee beans will degrade faster than a light roast, and ground coffee loses its flavor and becomes bitter much faster than whole beans.

Preventing air exposure to the coffee after it is roasted is important to protect the flavor. Refrigerating and freezing coffee can extend the shelf life of coffee, but only if the packages are well sealed so the coffee doesn't dry out or absorb moisture or flavors from other items stored in the refrigerator or freezer.

Health benefits and hazards

(13) Extensive research has been conducted on the health benefits and hazards of consuming coffee on a regular basis.

A variety of studies indicate that moderate consumption of coffee may contribute to improved energy levels, endurance, memory, regularity and decreased risk of diabetes, heart disease, some cancers and gallstones. Other studies indicate that coffee may also contribute to high blood pressure, headaches, anxiety, menopausal symptoms, low birth weight babies, digestive problems and sleep issues. Paper filters seem effective in filtering out an oil in coffee that may raise bad cholesterol, so the method of making coffee may change the impact on your health. Choices for coffee consumption should be based on your individual health and risks. Most medical providers suggest that coffee be consumed in moderation.

"Moderation" means less than 400 milligrams of caffeine a day, according to the Mayo Clinic. That is about 4 cups of regular coffee, 10 regular sized colas or 2 energy drinks per day. Caffeinated drinks are not recommended for children and teens should limit their consumption to no more than 100 milligrams per day.

Something to keep in mind is how we combine coffee with other ingredients and activities and how those things affect our health. Popular coffee drinks containing unsaturated and saturated fats, sweeteners and flavorings, can add hundreds of calories to your daily diet. Coffee may be consumed along with smoking, a lack of physical activity or with the consumption of high calorie foods, which may also impact an individual's health.

Consumption

(14) National Geographic News has referred to the Pacific Northwest as "coffee-country" and reports that researchers find elevated caffeine levels in coastal waters carried there by streams and rivers that run through populated areas. The impact of the caffeine on the environment is unknown.

However, in terms of daily consumption, Americans are far down the list. The Finnish consume more than twice the amount of coffee as we do and the Norwegians and Danish aren't far behind. The U.S. ranks 16th in terms of per capita consumption of coffee on a daily basis in the world. That reflects a major change over time. While the USDA reports that Americans average just a cup a day now, they reported that we consumed an average of 2 cups a day in 1946, when coffee consumption was at an all-time high.

Believe it or not, almost half the world prefers instant coffee. Sales of instant coffee have tripled since 2000 and make up for a third of the coffee people drink in the world. This is not true in the United States. Regardless of efforts of most coffee manufactures to introduce an instant coffee to the market, Americans have not warmed to the idea. Countries that are traditionally tea drinking countries seem to have embraced this instant option.

In the U.S. and much of Europe, the fastest growing segment of the coffee industry is single-serving coffee pods. The sales of machines for use with coffee pods exceeds drip coffee makers, although the total ownership hasn't quite caught up yet. A concern with single-serve coffee making is the leftover cups. If strung together, all the leftover coffee pods used in 2014 would circle the globe more than 10 times. They have no other uses like a good, old coffee can for storing trinkets and treasures.

A final note:

(15) Around 1735, German Composer Johann Sebastian Bach, wrote "Schweigt stille, plaudert nicht." Translated into English, *Be Still, Stop Chattering*, is a comedic opera about a woman who drinks too much coffee and her father who won't allow her to marry until she stops. By the end, all those on stage are singing coffee's praises. It is said that the handwritten notes of the opera appear to have been written while Bach was drinking coffee himself.

Notes to leader:

Crossword Puzzle

Distribute the crossword puzzle to participants. Give them a few minutes to fill in the blanks. Confirm their answers with the attached key.

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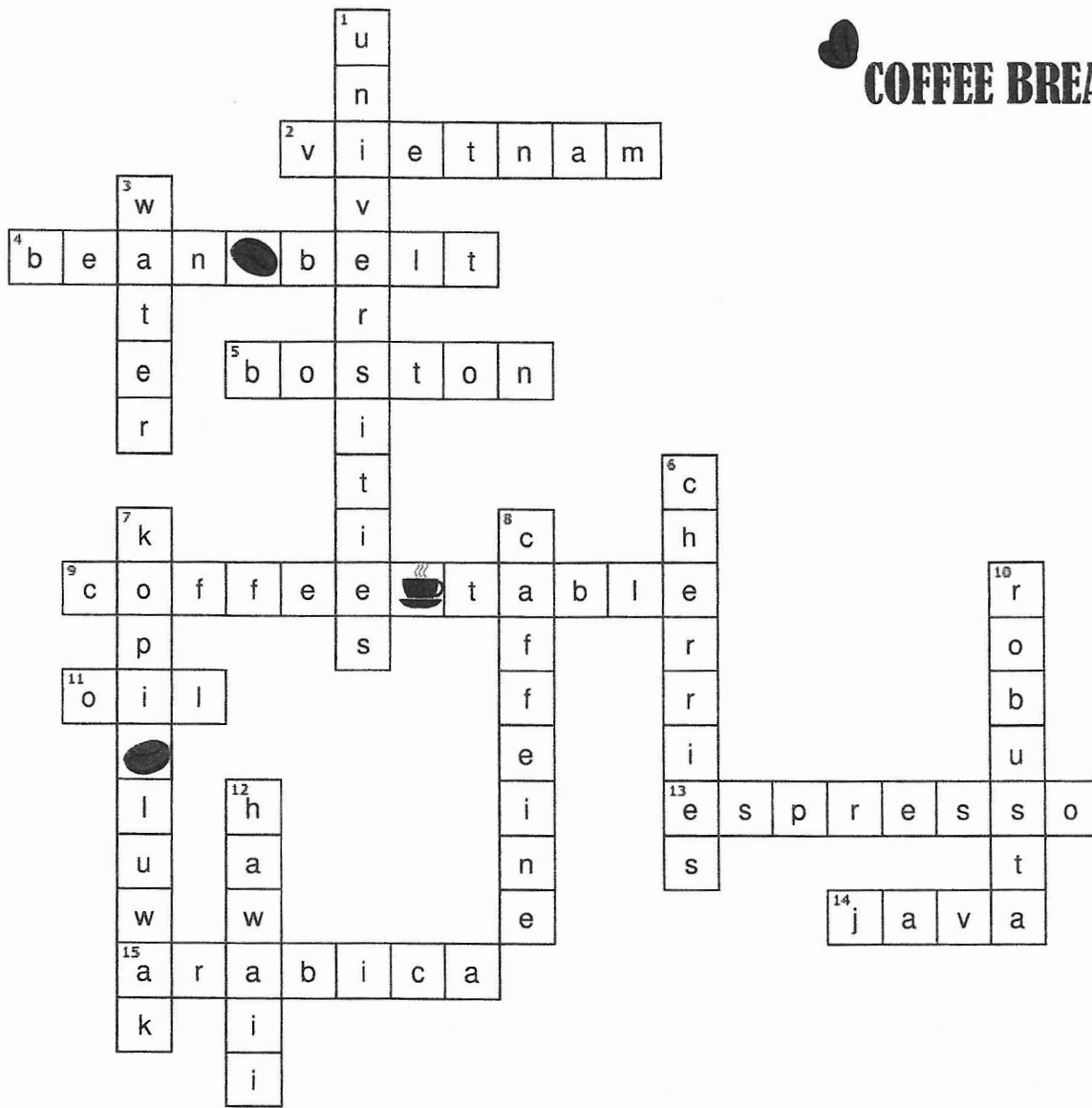
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Across

2. The top 3 coffee producing counties in the world are Brazil, Colombia and _____.
4. The _____ is the strip around the middle of the world where temperatures and humidity are ideal for coffee production.
5. The location of this big tea party is known as the unofficial start of the US Revolutionary War with England.
9. Most people have this popular piece of furniture in their homes, meant to make serving coffee to guests easier.
11. Next to _____, coffee is the most traded commodity in the world.
13. When hot water is forced through roasted coffee beans that are finely ground, the resulting strong beverage is referred to as _____.
14. The island that the Dutch started growing coffee on, in Indonesia.
15. _____ coffee makes up ¾ of the world coffee supply, is mild high quality and grows best at cooler, higher elevations.

Down

1. In England, the cost of a cup of coffee became the unofficial name for these centers of activity and learning in the 1700's, "penny _____."
3. Tea and _____ are the only liquids people drink more than coffee.
6. Coffee is not really a bean, but rather the pit of the coffee tree fruit which are called _____.
7. Expensive Indonesian famous coffee also know as "Cat Poop Coffee".
8. _____ is the component of coffee that makes goats and people energetic.
10. _____ coffee can thrive in warmer temperatures and lower altitudes, but is stronger coffee.
12. In the United States, coffee is only grown in the state of _____.