

Lesson by

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Lesson Description

In this lesson, students will compare the price of goods from one time period to another and through discussion and role play interpret the effects of inflation on consumers. They will categorize goods and services according to the eight major groups of the consumer price index and be able to determine the difference between the Consumer Price Index (CPI) and the core CPI.

Time Required

60-90 minutes

Content Standards

National Standards in Economics

■ **Standard 11: Money and Inflation**

Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services. The amount of money in the economy affects the overall price level. Inflation is an increase in the overall price level that reduces the value of money.

- Benchmark 4, Grade 8: Inflation reduces the value of money.
- Benchmark 3, Grade 12: The consumer price index (CPI) is the most commonly used measure of price-level changes. It can be used to compare the price level in one year with price levels in earlier or later periods.
- Benchmark 4, Grade 12: The annual inflation rate is the percentage change in the average prices of goods and services over a twelve-month period.

■ **Standard 19: Unemployment and Inflation**

Unemployment imposes costs on individuals and the overall economy. Inflation, both expected and unexpected, also imposes costs on individuals and the overall economy.

- Benchmark 2, Grade 8: When people's incomes increase more slowly than the inflation rate, their purchasing power declines.
 - Benchmark 6, Grade 12: Unexpected inflation imposes costs on many people and benefits others because it arbitrarily redistributes purchasing power among different groups of people. Unexpected inflation hurts savers and people on fixed incomes; it helps people who have borrowed money at a fixed rate of interest.
 - Benchmark 7, Grade 12: Inflation can reduce the rate of growth of national living standards because individuals and organizations use resources to protect themselves against the uncertainty of future prices.
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Concepts

Inflation
Inflation Rate
Consumer Price Index (CPI)
Core Consumer Price Index
Spending

Objectives

Students will:

- Define inflation, inflation rate, Consumer Price Index and core CPI
 - Explain how inflation affects purchasing power.
 - Determine the price of goods and services from one year to another as adjusted for inflation by using an online calculator.
 - Identify the categories of consumer spending included in the CPI and the core CPI.
 - Explain a role of the Bureau of Labor Statistics.
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Materials

- Smart Notebook file “The Market Basket”
 - One first-class postage stamp for visual
 - Internet access
 - Handout 1 – one copy cut apart making eight strips
 - Handout 2 – one per student
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Preparation

Before the lesson, make one copy of Handout 1 and cut apart on the dotted lines making eight strips.

Procedure

1. Begin the class by showing the students a current first-class postage stamp. Discuss the price of the stamp by asking the following questions:
 - What is the price of a first-class postage stamp? (*The price in 2011 is 44 cents.*)
 - Do you think the price of a postage stamp is the same today as it was twenty years ago? Fifty years ago? (*The price is more today than in previous years.*)

2. Display Slide 2. Discuss the increase in the price of a first-class postage stamp over the years, such as the increase from 15 cents to 18 cents on March 22, 1981 and the subsequent increase to 20 cents on November 1, 1981. The largest one-time increase was 4 cents in 1991. The most recent increase was from 42 cents to 44 cents in 2009. Ask the students these questions:
 - Why do you think the price of a stamp has increased over the years? (*Answers may vary but should include that most things cost more today than they used to cost.*)
 - Can you think of other things that cost more today than at an earlier time? (*Answers may vary according to experiences of students.*)
3. Display Slide 3. Assign a student to read the slide aloud. Follow the reading by explaining that the increase in the price of one item or a few items is not an indication of inflation. It is the increase in the *average* price of many goods and services that determines inflation.
4. Explain that inflation affects consumers in different ways. As long as their personal incomes increase at the same rate as the inflation rate, then inflation is hardly noticed by consumers. They can buy the same goods and services. However, if a consumer's personal income stays the same or increases at a slower rate than inflation, the consumer isn't able to buy the same goods and services. The result would be a decrease in purchasing power. Inflation will also reduce the value of people's savings if the interest rate at which the savings grows is less than the rate of inflation.
5. Invite eight students to come to the front of the room and provide each student with one strip cut from Handout 1. Tell each of the eight students that they will assume the identity of the person in the scenario on their strip and share this information about themselves with the class in a role-play. Instruct the students that they can be creative in their presentation of information about themselves by adding specific details but cannot change the basic information. For example:

Strip information: Kara's retirement income is fixed at \$24,000 per year.
Presented information: "Hi! I'm Kara and I have worked all my life down at the local factory. I have paid enough into my pension plan that I will have \$24,000 a year for the rest of my life."
6. Allow time for students to make the role-play presentations.

7. Display Slide 4 and explain that the scenarios on the slide are the same as on the strips the students are holding. Ask each of the eight students to read aloud the scenario from their strip, locate the scenario on Slide 4, decide whether the person described would be better or worse off as a result of inflation, and click and drag the scenario to the correct column. Upon completion of the task, ask the audience to signal their approval or disapproval of the decision by applause. The student may determine that the answer is incorrect based on the audience response and, therefore, change the answer based on this message.
8. Display Slide 5 to check answers.
9. Display Slide 6 and assign a student to read the slide aloud. After the reading, explain that since 1913, the Bureau of Labor Statistics has collected information on inflation and reported this information monthly. Using the collected data, the price of goods and services can be compared from one year to another.
10. Display Slide 7 and assign a student to read the definition of the Consumer Price Index.
11. Choose a student to read Slide 8. Explain that one reason consumers' experiences with inflation vary is because people buy different items. The price of some items may be increasing more rapidly than the price of other items. For example, the prices of prescription drugs may be rising more rapidly, increasing the average price level. If this were the case, it could be that elderly people would feel the effects of inflation more severely than younger people.
12. Display Slide 9. Explain that the *inflation rate* can be determined by comparing the percentage change in the price level of goods and services from one time period to another.
13. Refer to the formula for calculating the annual inflation rate shown on Slide 9. Ask the question:

If the price of goods and services in year 1 = \$100 and the price of goods and services in year 2 = \$103, what is the percentage increase in the price of goods and services from year 1 to year 2? In this example, what is the annual inflation rate?

Use the formula below to demonstrate how to determine the answer.

$$\frac{\text{CPI later year} - \text{CPI earlier year}}{\text{CPI earlier year}} \times 100$$

$$\frac{103-100}{100} \times 100 = 3\%$$

14. Ask students to consider this question:

If inflation is the only factor considered, (other factors such as size and quality of the product can influence a price change) what would a consumer expect to pay for a McDonald's hamburger today that cost 15 cents in 1964?
15. Tell the students that this question can be answered by using an online calculator designed by the BLS. The calculator determines what the price of a good or service would be if the price had increased according to the rate of inflation—in other words, it determines the inflation adjusted price.
16. Distribute a copy of Handout 2 to each student. Explain that four items are listed in the table with actual 1981 prices. The inflation adjusted price of these items can be determined using the online calculator provided by the BLS. Tell students to complete the table and answer the questions.
17. Discuss the completed handout. Explain that the prices from an earlier period for individual goods and services adjusted for inflation don't always match current prices of individual goods and services. This is because the inflation rate is calculated based on the average price level of goods and services. The prices of individual goods and services may not have increased as much or may have increased more than average.
18. Ask students to think of reasons why the prices of some individual goods and services may not have increased or may even have decreased since an earlier time period. (*Answers may vary but should include technological improvements, and more competition in the marketplace for specific items. For example, the price of a computer is much less today than 20 years ago even though there has been inflation during this period.*)
19. Display Slide 10. Explain that the CPI is often referred to as the *Headline CPI* or *All items index*. It is reported monthly and indicates the annual percentage change in price levels of 80,000 items that represent the purchases by urban consumers. This urban consumer group represents about 87 percent of the total U.S. population. The CPI does not measure inflation for people living in rural nonmetropolitan areas, farm families, people in the Armed Forces, and those in institutions. Although it does not include literally *all* items, it is quite representative of consumer goods and services. The data collected analyzes consumer spending in more than 200 categories, arranged into eight major groups:

Food and beverages	Housing
Apparel	Transportation
Medical care	Recreation
Education and communication	Other goods and services

20. Display and discuss Slides 11-18. As each slide is displayed, discuss the examples given for each group and call on individual students to provide additional examples for each group. List the examples on the slides as they are named.
21. Display Slide 19. Choose a student to read the slide aloud. Explain that the CPI includes some taxes such as sales and excise taxes that are directly associated with the prices of specific goods and services. However, the CPI excludes other taxes such as income and Social Security taxes that are not directly associated with the purchase of consumer goods and services.
22. Display Slide 20. Tell the students that the “market basket” of goods has been dumped. The cartons representing the eight categories of CPI have lost their labels. Choose students to come forward and straighten the basket, reload the cart, and correctly label the eight cartons. Instruct students to draw a red X through the labels that do not belong on a carton because they are not part of the CPI calculation.
23. Display Slide 21 to reveal the labels that do not belong. (*Answer: Income Tax, Social Security Tax and Life Insurance do not belong.*)
24. Display Slide 22 to show the “market basket” with the eight categories correctly labeled.
25. Display Slide 23. Discuss and define another measurement of inflation—the core CPI. Explain that the core CPI is the CPI excluding food and energy.
26. Explain that food and energy prices tend to be more volatile and subject to more variance in prices. The sharp and often short-term movements can obscure longer term and underlying trends in other categories. As a result these items—food and energy are excluded from the core CPI.
27. Ask the students these questions:
 - Have you ever seen the price of a gallon of gas change several cents per gallon overnight? (*Accept answers according to student experiences.*)
 - Have you ever seen the price of food change depending upon the season? (*Answers may vary but may include watermelons, cantaloupes, strawberries and other fruits being expensive in the winter.*)
28. Explain that by excluding food and energy, the core CPI is designed to measure and analyze inflation in the short run without the risk of volatile prices possibly concealing the true picture of inflationary trends.
29. Ask students to recall the eight groups in the CPI. Refer back to Slide 10 and ask the class the following questions:
 - Is there a group designated for food? (*Answer: Yes, one of the groups is Food and beverages.*)

- Is there a group designated for energy? *(No, energy does not have a group of its own. Energy is embedded in the other groups.)*
- How might energy costs be implicit (or implicitly stated) in the transportation category? *(Answers may vary but may include the cost of gas is calculated into the price of bus, airline or taxi fare. It's calculated into the cost of shipping.)*
- How might energy costs be implicit in the food and beverage category? *(Answers may vary but may include the cost of gas is calculated into the price of transporting and shipping produce and other food items.)*
- How might energy costs be implicit in the housing category? *(Answers may vary but may include the cost of heating, cooling and cooking as energy costs embedded in housing costs.)*

Closure

1. Ask students these questions, presented on slides 24 through 26:
 - How is inflation defined?
(Inflation is a general rise in the level of prices over time. It is a sustained increase in the average price level of goods and services.)
 - How does inflation affect purchasing power?
(If a consumer's personal income stays the same or increases at a slower rate than inflation, the consumer isn't able to buy the same goods and services. Inflation will also reduce the value of people's savings if the interest rate at which the savings grows is less than the rate of inflation.)
 - How is the inflation rate defined?
(The inflation rate is the percent change in price level determined by comparing the percentage increase or decrease in the price level of goods and services from one time period to another.)
 - What is the Consumer Price Index and how does it differ from core CPI?
(The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. The CPI measures changes on a monthly basis. The core CPI is the CPI excluding food and energy.)
 - What are the categories of consumer spending included in the CPI and the core CPI?
(The eight major categories included in the CPI and core CPI are as follows: Food and beverages, Housing, Apparel, Transportation, Medical care, Recreation, Education and communication, and Other goods and services.)
 - What is the role of the Bureau of Labor Statistics?
(The Bureau of Labor Statistics (BLS) is a federal agency that collects and analyzes economic data. It is responsible for measuring labor market activity, working conditions, and price changes in the economy to provide information for private and public decision making.)

2. Review the lesson vocabulary by displaying Slide 27 and completing the self-checking activity.
3. Display Slide 28. Read the rules together for playing the Matching Game. Tell the students that the object of the game is to select a matching picture and title according to groups used by the BLS for collecting data on the CPI. Explain that some groups are in the game two times and have more than one match. (*Answers are grouped on Slide 30.*)
4. Display Slide 29. Play the matching game to categorize and classify items into appropriate groups that are used to measure the CPI.

Optional

5. Tell students to listen to *The Economic Lowdown podcast Episode 4: Inflation* found at http://www.stlouisfed.org/education_resources/podcasts/economic_lowdownv1ep4.cfm

Handout 1

Selma is seventy-five years old and has saved money to pay for her goods and services in her retirement years. She believes that her retirement expenses will be the same each year.

Doug has been saving his money for four years to pay for a new car. He has carefully tucked away part of his earnings each week in a cookie jar. During this four-year period, inflation has caused the price of new cars to increase about 3 percent each year.

Kara's retirement income is fixed at \$24,000 per year.

John loaned his friend \$5,000 last year and will be paid back the \$5,000 at the end of this year. The inflation rate for the last two years has averaged 2 percent.

During the past two years, the inflation rate has averaged 3 percent per year. Allen has worked at the same job during this time and has received a 1 percent pay increase one year, a 10 percent pay increase in another year, and no other increases in his wages.

Joann borrowed \$100 from her sister two years ago. She plans to pay the full debt of \$100 back in another year or two when she has the money. According to reports, the inflation rate has averaged 2 percent each year that she has had the debt.

Robert's retirement income is adjusted each year. If there is inflation his retirement income increases by the same rate as inflation.

During the past five years, the inflation rate has averaged 3 percent per year. John has worked at the same job during this time and has received a 1 percent pay increase one year, a 3 percent pay increase in another year and no other increases in his wages.

Handout 2

Use the online calculator found at <http://data.bls.gov/cgi-bin/cpicalc.pl> to find the price of a McDonald's hamburger today if the price was \$.15 in 1964, and the price increased at the rate of inflation.



Use the online calculator to determine what the inflation adjusted prices of these items would be based on their prices in 1981.

Item	Price in 1981	Inflation adjusted price (2011)
First-class stamp	\$.20	\$
Gallon of gas	\$1.38	\$
Dozen eggs	\$.90	\$
Gallon of milk	\$2.22	\$
TOTALS		

Source for 1981 prices: <http://www.1980sflashback.com/1981/economy.asp>

1. What is the total price of these four items in 1981?
2. If the prices of these items increased at the rate of inflation, what would the total price of the items be today?
3. How much more or less money should you need today to buy these four items than people did in 1981?
4. Is the price of any of these four items actually more than the inflation adjusted price?
5. Is the price of any of these four items actually less than the inflation adjusted price?
6. Why is it important for personal income to increase at the same rate as inflation?

Handout 2: Answer Key

Use the online calculator found at <http://data.bls.gov/cgi-bin/cpicalc.pl> to find the price of a McDonald's hamburger today if the price was \$.15 in 1964, and the price increased at the rate of inflation.



Use the online calculator to determine what the inflation adjusted prices of these items would be based on their prices in 1981.

Item	Price in 1981	Inflation adjusted price (2011)
First-class stamp	\$.20	\$.49
Gallon of gas	\$1.38	\$3.39
Dozen eggs	\$.90	\$2.21
Gallon of milk	\$2.22	\$5.46
TOTALS		

Source for 1981 prices: <http://www.1980sflashback.com/1981/economy.asp>

1. What is the total price of these four items in 1981? (*\$4.70*)
2. If the prices of these items increased at the rate of inflation, what would the total price of the items be today? (*\$11.55*)
3. How much more or less money should you need to buy these four items than people did in 1981? (*It takes \$11.55 today to buy what \$4.70 would buy in 1981.*)
4. Is the price of any of these four items actually more than the inflation adjusted price? (*Yes, gasoline currently cost more than \$3.39 per gallon.*)
5. Is the price of any of these four items actually less than the inflation adjusted price? (*Yes, milk, eggs, and postage are all less than the anticipated current price.*)
6. Why is it important for personal income to increase at the same rate as inflation? (*It would take more money to buy the same goods. If there were not an increase in personal income that was equal to the increase in prices due to inflation, a person would not have enough money to purchase the same goods. Their purchasing power would decrease.*)