



The New Color of Money
Safer. Smarter. More Secure.



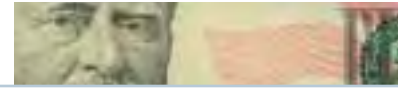
Current Changes in Currency Design Why a Newly Redesigned \$50 Note?

LESSON PLAN

This lesson plan is designed to teach students about the features of the newly redesigned \$50 note and offers educators the opportunity to teach U.S. history and economics at the National Standard level.

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Available for download at www.moneyfactory.com/newmoney



Why a Newly Redesigned \$50 Note?

LESSON INTRODUCTION

The United States government continues plans to issue currency with enhanced designs and security features to combat counterfeiting. The government introduced a newly redesigned \$20 note design in October 2003 and will continue with other denominations to complete the Series 2004 currency. A newly redesigned \$50 note will be issued beginning on September 28, 2004, followed later by a new \$100 note. Decisions on new designs for the \$5 and \$10 notes are still under consideration, but a redesign of the \$2 and \$1 notes is not planned. The redesigned currency is safer, smarter and more secure: safer because it is harder to fake and easier to check; smarter to stay ahead of tech-savvy counterfeiters; and more secure to protect the integrity of U.S. currency.

The most noticeable difference in the new design is the subtle introduction of background colors, which makes it more burdensome for potential counterfeiters because it adds complexity to the note. The addition of color will also make it easier to distinguish between denominations because different background colors will be used for different denominations.

Despite the addition of color, the redesigned notes preserve the distinct size, look and feel of the traditional American currency—the world's most familiar and circulated currency. United States currency is widely circulated because U.S. citizens and those from other countries recognize that they can trust U.S. currency to retain its value. In fact, more than 60 percent of all U.S. currency circulates outside of the United States.

The newly redesigned \$50 note is the second of the Series 2004 designs to be issued, which include subtle shades of color and highlight historical symbols of Americana. A newly redesigned \$20 note was introduced in 2003 with green, peach and blue colors as well as images of American eagles. The newly redesigned \$50 note will include enhanced security features, subtle background colors of blue and red and images of a waving American flag and a small metallic silver-blue star.

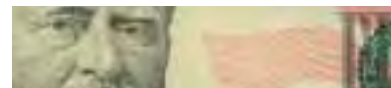
AGE LEVEL

Middle through high school
Note: May be modified for younger students

The Federal Reserve and the Department of the Treasury are committed to continuous improvements in currency designs to protect the economy and consumers' hard-earned money. To ensure this, they expect to introduce new currency designs every seven to ten years.

This lesson is designed to teach students about the features of the newly redesigned \$50 note and offer educators the opportunity to teach U.S. history and economics. The lesson is divided into four independent sections. The Federal Reserve and the Department of the Treasury encourage you to utilize all of the resources available online at www.moneyfactory.com/newmoney to make learning about the newly redesigned \$50 note fun! Students can play games, view an interactive note, and discover much, much more.

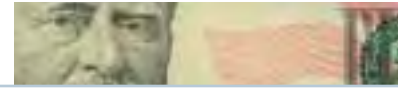
Note: If you are a fifth-grade or sixth-grade teacher who uses Mini-Society™ or Mini-Economy, you should review sections one and three of this lesson. These sections will complement the currency design and creation component of Mini-Society™ or Mini-Economy



Why a Newly Redesigned \$50 Note?

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What National Content Standards Does This Lesson Address?

Section One: TEACHING ABOUT THE NEW \$50 NOTE

CONTENT STANDARDS

National History Standards

Students will:

- 2F. utilize visual and mathematical data presented in charts, tables, pie and bar graphs, flow charts, venn diagrams, and other graphic organizers.

Voluntary National Standards in Economics

Students will:

11. explain how their lives would be more difficult in a world with no money or in a world where money sharply lost its value.

National Standards in Language Arts

Students will:

4. adjust their use of spoken, written and visual language to communicate effectively with a variety of audiences for a variety of purposes.
5. use a variety of technological and informational resources to gather and synthesize information and communicate knowledge.

Section Two: WHAT IS THE VALUE OF \$50?

CONTENT STANDARDS

National History Standards

Students will:

- 2H. utilize visual, mathematical, and quantitative data presented in charts, tables, pie and bar graphs, flow charts, venn diagrams, and other graphic organizers to clarify, illustrate, or elaborate upon information presented in the historical narrative.
- 4B. obtain historical data from a variety of sources, including: library and museum collections, historic sites, historical photos, journals, diaries, eyewitness accounts, newspapers, and the like; documentary films, oral testimony from living witnesses, censuses, tax records, city directories, statistical compilations, and economic indicators.
- 4E. employ quantitative analysis to explore such topics as changes in family size and composition, migration patterns, wealth distribution, and changes in the economy.

Voluntary National Standards in Economics

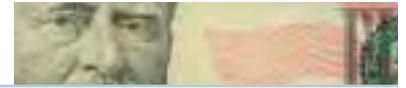
Students will:

11. explain how their lives would be more difficult in a world with no money or in a world where money sharply lost its value.
19. make informed decisions by anticipating the consequences of inflation and unemployment.

National Standards in Language Arts

Students will:

7. conduct research on issues and interests by generating ideas and questions or posing problems. They gather, evaluate and synthesize data from a variety of sources in ways that suit their purpose and audience.



Section Three: WHOSE PICTURE IS ON THIS NOTE?

CONTENT STANDARDS

National History Standards

Students will:

- 4B. obtain historical data from a variety of sources, including: library and museum collections, historic sites, historical photos, journals, diaries, eyewitness accounts, newspapers, and the like; documentary films, oral testimony from living witnesses, censuses, tax records, city directories, statistical compilations, and economic indicators.
- 4F. support interpretations with historical evidence in order to construct closely reasoned arguments rather than facile opinions.

National Standards in Language Arts

Students will:

4. adjust their use of spoken, written, and visual language to communicate effectively with a variety of audiences and for different purposes.
7. conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate, and synthesize data from a variety of sources to communicate their discoveries in ways that suit their purpose and audience.
8. use a variety of technological and informational resources to gather and synthesize information and to create and communicate knowledge.

Section Four: JOBS MAKING MONEY

CONTENT STANDARDS

Voluntary National Content in Economics

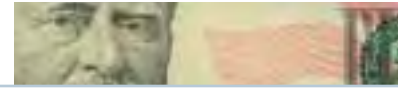
Students will:

15. know that investment in factories, machinery, new technology, and the health, education, and training of people can raise future standards of living.

National Standards in Language Arts

Students will:

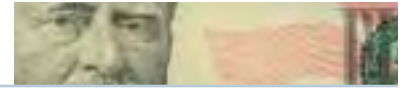
4. adjust their use of spoken, written, and visual language to communicate effectively with a variety of audiences and for different purposes.
7. conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate, and synthesize data from a variety of sources to communicate their discoveries in ways that suit their purpose and audience.
8. use a variety of technological and informational resources to gather and synthesize information and to create and communicate knowledge.



Online Resources

The following Web sites are referenced throughout the lesson plan. The United States government encourages you to review them prior to teaching the lesson to enhance your knowledge to pass onto your students.

- www.moneyfactory.com - The Bureau of Engraving and Printing
- www.moneyfactory.com/newmoney - The official site of the newly redesigned currency **The New Color of Money: Safer. Smarter. More Secure.** (Students can click on *Youth Education* to access the downloadable interactive CD-ROM, and view the interactive \$20 and \$50 notes.)
- www.ustreas.gov - United States Department of the Treasury
- www.federalreserveeducation.org - United States Federal Reserve economic education site (Students can click on *Fed 101 Web site*.)
- www.frbsf.org/currency - Federal Reserve Bank of San Francisco (Students can view the *American Currency Exhibit*.)
- www.frbsf.org/education/fedville - Federal Reserve Bank of San Francisco (Students can visit *FedVille*, a friendly town built for kids to teach them the value of currency.)
- www.bos.frb.org/peanuts - Federal Reserve Bank of Boston (Students can play a Web-based baseball game that reviews economic concepts while learning about the economics of professional sports.)
- www.secretservice.gov - United States Secret Service
- minneapolisfed.org/research/data/us/calc/index.cfm - *calc* - Federal Reserve Bank of Minneapolis (Information on the Consumer Price Index (CPI).)



Section One: TEACHING ABOUT THE NEW \$50 NOTE

CONTENT STANDARDS

National History Standards

Students will:

- 2F. utilize visual and mathematical data presented in charts, tables, pie and bar graphs, flow charts, venn diagrams, and other graphic organizers.

Voluntary National Standards in Economics

Students will:

11. explain how their lives would be more difficult in a world with no money or in a world where money sharply lost its value.

National Standards in Language Arts

Students will:

4. adjust their use of spoken, written and visual language to communicate effectively with a variety of audiences for a variety of purposes.
5. use a variety of technological and informational resources to gather and synthesize information and communicate knowledge.

Note: If you plan to use this lesson with students below the middle through high school level age, please read procedure step #9 and modify by having your students present to other students at their grade level or lower.

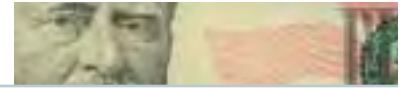
OBJECTIVES

Students will be able to:

- explain why the U.S. government issues new currency; and
- identify features of the newly redesigned \$50 note.

TIME REQUIRED

Two to three class periods



MATERIALS

- A transparency of Visual 1.1
- A copy of Activity 1.1 for each student
- A piece of posterboard for each group of students
- Art supplies
- Internet access

www.ustreas.gov

www.federalreserveeducation.org (click on *Fed 101 Web site*)

www.secretservice.gov

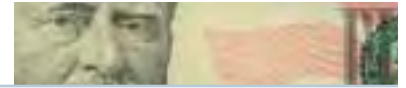
www.moneyfactory.com

www.moneyfactory.com/newmoney (click on *Youth Education* to access a downloadable interactive CD-ROM, and view the interactive \$50 note)

www.frbsf.org/currency/index.html and visit the *American Currency Exhibit*

PROCEDURE

1. Tell the students they are going to begin learning about U.S. currency. Explain that there are many important organizations involved in the design of currency and related money matters, including the Federal Reserve, the Bureau of Engraving and Printing, the U.S. Secret Service and the U.S. Treasury.
2. Explain that every U.S. currency note issued since 1861 is still redeemable today at full face value by the U.S. government. In October 2003, the U.S. government issued newly redesigned \$20 notes. The newly redesigned note was enhanced to include security features to help stay ahead of tech-savvy counterfeiters and to protect the integrity of U.S. currency. To stay ahead of counterfeiters, the U.S. government plans to introduce new designs every seven to ten years. As part of this project, the government is introducing a newly redesigned \$50 note, which will be issued beginning on September 28, 2004, followed later by a new \$100 note.
3. Point out the following:
 - All over the world, people have confidence in U.S. currency. They trust that the currency will have value in the future.
 - There is nearly \$700 billion of U.S. currency in circulation worldwide. The Federal Reserve estimates that as much as two-thirds of that currency circulates outside the United States. The Federal Reserve System is the central bank of the United States. It includes the Board of Governors located in Washington, D.C., and twelve Federal Reserve Banks located throughout the United States. The Federal Reserve Banks distribute currency through the banking system. The Federal Reserve is responsible for monetary policy (controlling the money supply) in the U.S. economy. Students can learn more about the Federal Reserve System by visiting www.federalreserveeducation.org.
 - More U.S. currency is in circulation than any other currency in the world.



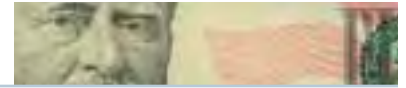
4. Explain that the Federal Reserve (www.federalreserveeducation.org), the U.S. Department of the Treasury (www.ustreas.gov), Bureau of Engraving and Printing (www.moneyfactory.com) and the U.S. Secret Service (www.secretservice.gov) protect the integrity of U.S. currency against counterfeiting. As a result, these organizations have a plan for continuous improvement in currency design and for aggressive law enforcement.

Note: For additional information about the organizations listed above, visit the Web sites listed in parentheses.

5. Display Visual 1.1 and distribute a copy of Activity 1.1 to each student. Explain that Activity 1.1 includes a timeline that shows what a \$50 note looked like prior to 1996; what a Series 1996 \$50 note looks like, and what the Series 2004 note looks like. Explain that Visual 1.1 shows the newly redesigned \$50 note.

Note: The “series” date on paper currency appears on the face of the note at the bottom right of the portrait. The series date without a suffix letter indicates (a) the year production started after approval of the original design, (b) when there was a major revision to the currency note design, or (c) when the manner of printing changed. A minor revision in the design or a change in the signature of the Treasurer is indicated by an addition of a suffix letter to the series year. The series date does not change each calendar year as it does on coins. The year in which the currency is actually printed is also not indicated on the note.

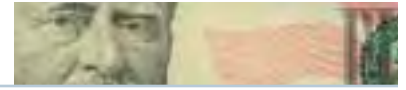
6. Once again refer to the transparency of Visual 1.1. Tell students that first they will learn some facts about the newly redesigned \$50 note. Describe and explain the following facts about the newly redesigned \$50 note. Point out that some of these features were introduced in the Series 1996 and others are new to the Series 2004 notes. Tell students they may take notes about the newly redesigned \$50 note on their handout. Students can visit www.moneyfactory.com/newmoney to view the interactive \$50 note highlighting the security features.
 - **Watermark:** Hold the bill up to the light and look for the watermark, or faint image, similar to the large portrait. The watermark is part of the paper itself and it can be seen from both sides of the note. This feature was first introduced in the Series 1996 currency.
 - **Security Thread:** Hold the bill up to the light and look for the security thread, or plastic strip, that is embedded in the paper and runs vertically to the right of the portrait. It was first introduced in the Series 1996 currency. If you look closely, the words “USA 50” and a small flag are visible along the thread from both sides of the note. The security thread in the Series 2004 \$50 note is slightly wider than it has been in previous notes. A wider thread makes it easier for the public to read the words “USA 50” and verify the authenticity of the note. This thread glows yellow when held under an ultraviolet light.
 - **Color-Shifting Ink:** Look at the number “50” in the lower right corner on the face of the bill. When you tilt the note up and down, the color-shifting ink changes from copper to green. The color shift is more dramatic in the newly redesigned notes. This makes it even easier for people to check to be certain their money is genuine. This feature was first introduced in the Series 1996 currency.
 - **Microprinting:** Microprinted words are very small, so small they are hard to replicate. Microprinting was included in the Series 1996 currency. However, some changes have been made in the new \$50 note. There are three areas on the face of the new \$50 note that include microprinting:



- 1) in the two blue stars to the left of the portrait, the words “FIFTY,” “USA,” and the numeral “50” are microprinted; 2) the word “FIFTY” is repeated within both side borders of the note; and 3) the words “THE UNITED STATES OF AMERICA” appear on President Ulysses S. Grant’s collar, under his beard.
7. Point out that there are even more features to discuss regarding the \$50 note. Review the following points with the students. Again, tell students to take notes on their handout. Students can visit www.moneyfactory.com/newmoney to view the interactive \$50 note highlighting the security features.
- **Symbols of Freedom:** There are new symbols on the \$50 note that represent the American flag. The traditional stars and stripes of the United States flag are printed in blue and red behind the portrait of Ulysses S. Grant. A field of blue stars is located to the left of the portrait, while three red stripes are located to the right of the portrait. A small metallic silver-blue star is also located to the right of the portrait. The symbols of freedom will differ for each denomination.
 - **Color:** The most noticeable difference in the newly redesigned \$50 note is the addition of subtle background colors of blue and red to both sides of the note. Also, small yellow 50s have been printed in the background on the back of the note. The Series 2004 notes mark the first time in modern American history that U.S. cash will include colors other than black and green. Different background colors will be used for the different denominations. This will help everyone to tell denominations apart.
 - **Updated Portrait and Vignette:** The oval borders and fine lines surrounding the portrait of President Grant on the face and the United States Capitol vignette on the back of the note have been removed. A vignette is a drawing of a scene, building or symbol found on the backside of U.S. currency. The portrait has been moved up and shoulders have been extended into the border. Additional engraving details have been added to the vignette background.
 - It is estimated that there is one counterfeit \$50 note in circulation for every 25,000 genuine \$50 notes in circulation.
 - Through aggressive law enforcement, government authorities seize the majority of known counterfeit U.S. dollars before they are passed into circulation.
 - When counterfeit notes enter circulation, innocent victims who accept the fake notes suffer a financial loss.
 - As digital equipment becomes more available to the general public, the amount of digitally produced counterfeit notes rises.

Discuss the following questions.

- A. Think about the \$5 and \$10 notes in your wallet, or if you have a note, take it out and look at it. How can you tell that the note is genuine? *(It is unlikely that students will have any idea how they can tell whether the note is genuine or counterfeit.)*
- B. Why is it so important that counterfeiting be prevented and that counterfeit currency not be circulated? *(People’s faith in the value of the dollar would be reduced. Those who receive counterfeit notes would be hurt financially.)*
- C. What could the government do to make sure the level of counterfeiting remains low? *(Tougher laws, teach people to recognize genuine currency, and redesign the currency.)*
- D. Are you aware of the changes that have been made in U.S. currency in recent times? *(Answers will vary.)*



- **Low-Vision Feature:** There's a large number "50" in the lower right corner on the back of the note. This change was first introduced in the Series 1996 currency. This feature is designed to make it easier for people to distinguish among their currency.
- **Federal Reserve Indicators:** To the left of the portrait is a symbol that represents the entire Federal Reserve System. A letter and number beneath the left serial number identify which Federal Reserve Bank issued the note. This change was first introduced in the Series 1996 currency. Explain that the Federal Reserve System distributes new currency throughout the country via the twelve Federal Reserve Banks. The Federal Reserve is also responsible for controlling the money supply and guarding against inflation. (For additional information about the Federal Reserve System, visit www.federalreserveeducation.org.)
- **Serial Number:** The serial number is a unique combination of eleven numbers and letters that appear twice on the face of the note. On the new \$50 note, the left serial number has shifted slightly to the right compared with the previous design.

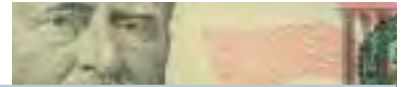
Note: As an optional activity, have a newly redesigned \$50 note and magnifying glass available so students can have a close up view of the new and enhanced features of the note.

8. Explain that the government knows that education about the new currency is the best way to make sure counterfeiters don't take advantage of people. Explain that it is valuable for younger students to understand the changes in currency, too.
9. Tell students their assignment is to come up with a slogan and to design a poster that can be used to encourage fifth-grade (or select other grade level) students to pay careful attention to their money and to help their parents pay attention, too. Consider distributing their posters to fifth-grade (or other level) class rooms in the district or to other schools nearby to increase awareness.

Note: Fifth-grade is the ideal choice because that's when the vast majority of elementary schools in the United States introduce the study of United States history.

10. Divide the students into groups of four or five. Distribute posterboard to each group. Have art supplies available. Tell students to use the notes they have on Activity 1.1 to help them design the posters. Students may visit www.moneyfactory.com/newmoney and click on *Youth Education* to access the interactive CD-ROM to learn more about currency, to play games, and to learn about what to do if they suspect a counterfeit note. The site also provides the opportunity to view an interactive \$20 and \$50 note that highlights the security features and to view educational materials in 23 different languages. Students may also visit www.frb.org/currency and view the *American Currency Exhibit*. Allow time for students to work.
11. When posters are completed, have groups share the posters with their peers.
12. Arrange for groups of students to visit fifth-grade classrooms (for example) to make a presentation about the newly redesigned \$50 note. Encourage students to develop an interesting, unique approach for presenting the material to younger students. Also encourage students to present the information to their parents.

Note: This activity can be adapted to other grade levels.



Visual 1.1

A Picture Is Worth A Thousand Words



Watermark

Hold the bill up to the light and look for the watermark, or faint image, similar to the large portrait of President Ulysses S. Grant. The watermark is part of the paper itself and it can be seen from both sides of the note.

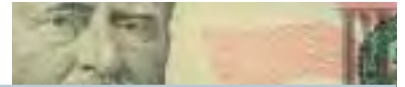


Security Thread

Hold the bill up to the light and look for the security thread, or plastic strip, that is embedded in the paper and runs vertically to the right of the portrait. If you look closely, the words "USA 50" and a small flag are visible along the thread from both sides of the note. This thread glows yellow when held under an ultraviolet light.

Color-Shifting Ink

Look at the number "50" in the lower right corner on the face of the note. When you tilt the note up and down the color-shifting ink changes color from copper to green.



Activity 1.1

A Picture Is Worth A Thousand Words

PRE-1996 NOTES



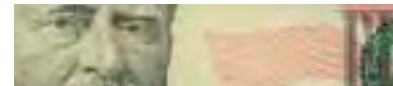
SERIES 1996 NOTES



SERIES 2004 NOTES



For additional information about the history of U.S. currency, visit www.frbsf.org/currency and view the *American Currency Exhibit*. Also visit www.moneyfactory.com/newmoney and click on *Youth Education* to access downloadable interactive CD-ROM, and view the interactive \$50 note.



Section Two: WHAT IS THE VALUE OF \$50?

CONTENT STANDARDS

National History Standards

Students will:

- 2H. utilize visual, mathematical, and quantitative data presented in charts, tables, pie and bar graphs, flow charts, venn diagrams, and other graphic organizers to clarify, illustrate, or elaborate upon information presented in the historical narrative.
- 4B. obtain historical data from a variety of sources, including: library and museum collections, historic sites, historical photos, journals, diaries, eyewitness accounts, newspapers, and the like; documentary films, oral testimony from living witnesses, censuses, tax records, city directories, statistical compilations, and economic indicators.
- 4E. employ quantitative analysis to explore such topics as changes in family size and composition, migration patterns, wealth distribution, and changes in the economy.

Voluntary National Standards in Economics

Students will:

11. explain how their lives would be more difficult in a world with no money or in a world where money sharply lost its value.
19. make informed decisions by anticipating the consequences of inflation and unemployment.

National Standards in Language Arts

Students will:

7. conduct research on issues and interests by generating ideas and questions or posing problems. They gather, evaluate and synthesize data from a variety of sources in ways that suit their purpose and audience.

Note: Prior to teaching this segment of the lesson, please locate the prices in your area for the items found on Visual 2.2.

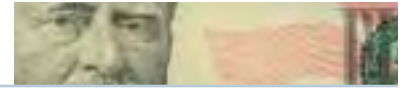
OBJECTIVES

Students will be able to:

- define inflation, Consumer Price Index (CPI), purchasing power, nominal prices, and real prices;
- use an inflation calculator; and
- relate information to the newly redesigned \$50 note.

TIME REQUIRED

Two class periods



MATERIALS

- A transparency of Visuals 2.1, 2.2 and 2.3
- (Note: Prior to teaching this segment of the lesson, please locate the prices in your area for the items found on Visual 2.2.)
- A copy of Activities 2.1 and 2.2 for each student
- Internet access

minneapolisfed.org/research/data/us/calc/index.cfm - calc

www.frbsf.org/currency/index.html (visit the *American Currency Exhibit*)

www.moneyfactory.com/newmoney (click on *Youth Education* to access a downloadable interactive CD-ROM, and view the interactive \$50 note)

www.bos.frb.org/peanuts

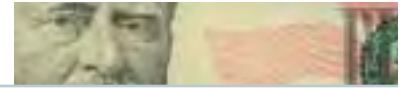
www.bls.gov/data/home.htm

PROCEDURE

1. Ask the students what they think of when they hear “1950.” (*Some may have nothing to say, others might mention rock and roll, or other things they’ve heard about the 1950s in general.*)
2. Tell students that in 1950:
 - Harry S. Truman was president of the United States.
 - Jackie Robinson signed the highest contract (\$35,000 annually) in Dodger history.
 - Elvis Presley wasn’t a rock and roll star yet. As a matter of fact, he was working as an usher at the Loew’s State Theater in Memphis.
 - The average price of a house was \$14,500.
 - In the U.S., there were approximately .05 black-and-white televisions per person.
 - 75% of phone lines were party lines (phone lines shared among multiple households).
3. Explain that newly redesigned \$50 notes, part of the Series 2004, will eventually over time replace the previously issued notes. Ask the students if their grandparents, parents, aunts or uncles ever talk about the prices they paid for goods and services when they were young. (*Answers will vary.*)

Note: If section one of this lesson was taught, skip to procedure step #8. If section one was not taught, continue with procedure step #4.

4. Display Visual 2.1 and distribute a copy of Activity 2.1 to each student. Explain that Activity 2.1 includes a timeline that shows what a \$50 note looked like prior to Series 1996; what a Series 1996 \$50 note looks like, and what the Series 2004 note looks like. Explain that Visual 2.1 shows the newly redesigned \$50 note.
5. Tell students they will first learn some facts about the newly redesigned \$50 note. Describe and explain the following facts about the newly redesigned \$50 note. Point out that some of these features were introduced in the Series 1996 notes and others are new to the Series 2004 notes. Tell students they may take notes about the newly redesigned \$50 note on their handout. Students can visit www.moneyfactory.com/newmoney to view the interactive \$50 note highlighting the security features.

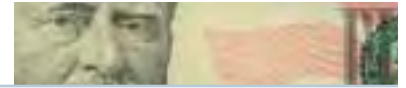


- **Watermark:** Hold the bill up to the light and look for the watermark, or faint image, similar to the large portrait. The watermark is part of the paper itself and it can be seen from both sides of the note. This feature was first introduced in the Series 1996 currency.
- **Security Thread:** Hold the bill up to the light and look for the security thread, or plastic strip, that is embedded in the paper and runs vertically to the right of the portrait. It was first introduced in the Series 1996 currency. If you look closely, the words “USA 50” and a small flag are visible along the thread from both sides of the note. The security thread in the Series 2004 \$50 note is slightly wider than it has been in previous notes. A wider thread makes it easier for the public to read the words “USA 50” and verify the authenticity of the note. This thread glows yellow when held under an ultraviolet light.
- **Color-Shifting Ink:** Look at the number “50” in the lower right corner on the face of the bill. When you tilt the note up and down, the color-shifting ink changes from copper to green. The color shift is more dramatic in the newly redesigned notes. This makes it even easier for people to check to be certain their money is genuine. This feature was first introduced in the Series 1996 currency.
- **Microprinting:** Microprinted words are very small, so small they are hard to replicate. Microprinting was included in the Series 1996 currency. However, some changes have been made in the new \$50 note. There are three areas on the face of the new \$50 note that include microprinting: 1) in the two blue stars to the left of the portrait, the words “FIFTY,” “USA,” and the numeral “50” are microprinted; 2) the word “FIFTY” is repeated within both side borders of the note; and 3) the words “THE UNITED STATES OF AMERICA” appear on President Ulysses S. Grant’s collar, under his beard.
- **Low-Vision Feature:** There’s a large number “50” in the lower right corner on the back of the note. This change was first introduced in the Series 1996 currency. This feature is designed to make it easier for people to distinguish among their currency.
- **Federal Reserve Indicators:** To the left of the portrait is a symbol that represents the entire Federal Reserve System. A letter and number beneath the left serial number identify which Federal Reserve Bank issued the note. This change was first introduced in the Series 1996 currency. Explain that the Federal Reserve distributes new currency throughout the country via the twelve Federal Reserve Banks. The Federal Reserve is also responsible for controlling the money supply and guarding against inflation. (For additional information about the Federal Reserve, visit www.federalreserveeducation.org.)
- **Serial Number:** The serial number is a unique combination of eleven numbers and letters that appear twice on the face of the note. On the new \$50 note, the left serial number has shifted slightly to the right compared with the previous design.

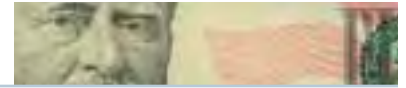
Note: As an optional activity, have a newly redesigned \$50 note and magnifying glass available so students can have a close up view of the new and enhanced features of the note.

6. Discuss the following questions.

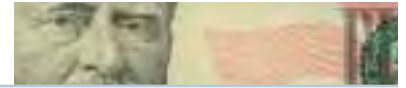
- A. Think about the \$5 and \$10 notes in your wallet, or if you have a note, take it out and look at it. How can you tell that the note is genuine? *(It is unlikely that students will have any idea how they can tell whether the note is genuine or counterfeit.)*



- B. Why is it so important that counterfeiting be prevented and that counterfeit currency not be circulated? (*People's faith in the value of the dollar would be reduced. Those who receive counterfeit notes would be hurt financially.*)
- C. What could the government do to make sure the level of counterfeiting remains low? (*Tougher laws, teach people to recognize genuine currency, and redesign the currency.*)
- D. Are you aware of the changes that have been made in U.S. currency in recent times? (*Answers will vary.*)
7. Once again refer to the transparency of Visual 2.1. Point out that there are even more features to discuss regarding the \$50 note. Review the following points with the students. Again, tell students to take notes on their handout. Students can visit www.moneyfactory.com/newmoney to view the interactive \$50 note highlighting the security features.
- **Symbols of Freedom:** There are new symbols on the \$50 note that represent the American flag. The traditional stars and stripes of the United States flag are printed in blue and red behind the portrait of Ulysses S. Grant. A field of blue stars is located to the left of the portrait, while three red stripes are located to the right of the portrait. A small metallic silver-blue star is located to the right of the portrait. The symbols of freedom will differ for each denomination.
 - **Color:** The most noticeable difference in the newly redesigned \$50 note is the addition of subtle background colors of blue and red to both sides of the note. Also, small yellow 50s have been printed in the background on the back of the note. The Series 2004 notes mark the first time in modern American history that U.S. currency will include colors other than black and green. Different background colors will be used for the different denominations. This will help everyone to tell denominations apart.
 - **Updated Portrait and Vignette:** The oval borders and fine lines surrounding the portrait of President Grant on the face and the United States Capitol vignette on the back of the note have been removed. A vignette is a drawing of a scene, building or symbol found on the backside of U.S. currency. The portrait has been moved up and shoulders have been extended into the border. Additional engraving details have been added to the vignette background.
 - Even with increased use of technology, efforts on the part of the authorities have kept counterfeiting at low levels.
 - It is estimated that there is one counterfeit \$50 note in circulation for every 25,000 genuine \$50 notes in circulation.
 - Through aggressive law enforcement, government authorities seize the majority of known counterfeit U.S. dollars before they are passed into circulation.
 - When counterfeit notes make it into circulation, innocent victims who accept the fake notes suffer a financial loss.
 - As digital equipment becomes more available to the general public, the amount of digitally produced counterfeit notes rises.
8. Explain that the \$50 notes back in the 1950s looked different than the newly redesigned \$50 note. Have students compare the differences in the notes based on what they learned in Section One of this lesson.



9. Display a transparency of Visual 2.2. Explain that these are prices for various goods in 1950. Discuss the following.
 - A. How do these prices compare to today's prices for similar goods? (*Much lower than today's prices.*)
 - B. Do you think people were better off in 1950 because prices were lower? (*Answers will vary.*)
10. Point out that a list of prices from 1950 doesn't offer enough information to allow students to know whether people were better or worse off. Ask the students what other information might be necessary. (*What the average income was, how to convert 1950 prices to today's prices.*)
11. Explain that the purchasing power of a person's income is the amount of goods and services the person can buy with that amount of income. Prices affect people's purchasing power. Discuss the following:
 - A. If your grandparent gives you a newly redesigned \$50 note for your birthday, and a CD is \$12.50, how many CDs can you buy? (*Four.*)
 - B. If the price of CDs decreases from \$12.50 to \$8.25, how many CDs could you buy with your newly redesigned \$50 note? (*Six.*) How did the change in price affect the purchasing power of your new note? (*Increased it.*)
12. Explain that most people are concerned about the purchasing power of their income. They want to know how many desired goods and services they can buy with their income. If prices rise 3 percent and a person's income stays the same, that income will not buy as many goods and services. (*The person is worse off.*)
13. When most prices are rising in the economy, people are hurt if their income doesn't rise as fast as or faster than prices. **Inflation** is a sustained rise in the average price level. Inflation reduces the purchasing power of money. Remind students that the Federal Reserve is responsible for monitoring inflation in the economy and for monetary policy. (For additional information about the Federal Reserve, visit www.federalreserveeducation.org.)
14. Explain that the **Consumer Price Index (CPI)** is a tool used to measure changes in the prices of most goods and services that people buy. The CPI is a statistic developed by the Bureau of Labor Statistics by analyzing journal data collected from U.S. households. (For additional information about the CPI, visit the following Web sites minneapolisfed.org/research/data/us/calc/index.cfm - calc and www.bls.gov/data/home.htm.)
15. By knowing about the CPI, people can analyze the impact of a wage change on their purchasing power. They can determine whether their purchasing power is increasing, decreasing or staying the same. In other words, they can determine if the newly redesigned \$50 note will buy fewer goods and services, more goods and services or the same amount of goods and services as a \$50 note did in 1950.
Discuss the following situations:
 - After one year of service, your salary is being increased from \$20,000 to \$21,000. What is the percentage increase? (*5 percent.*)
 - If the CPI measured the current year inflation rate at 0 percent, how much purchasing power would



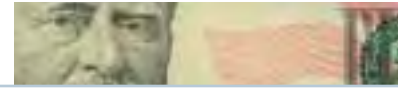
you gain with a 5 percent salary increase? (*You would be able to buy 5 percent additional goods and services over last year's purchases.*)

- If the CPI indicated a 3 percent increase in the average price level, and your salary increased 5 percent, how much additional purchasing power would you have? (*2 percent.*)
- If the CPI indicated a 7 percent increase in the average price level, and your salary increase was 5 percent, how much additional purchasing power would you have? (*You would actually lose 2 percent purchasing power.*)
- If the CPI indicated a 5 percent increase in the average price level, and your salary increase was 5 percent, how much additional purchasing power would you have? (*None. You would be able to buy the same amount of goods and services this year as you did last year – no more, no less.*)

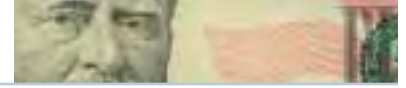
16. Explain that a **nominal price** is the price expressed in the current year's dollars. Distribute a copy of Activity 2.2. Record the 2004 nominal prices for the goods listed in column one of the table in the third column of the table on Visual 2.2. Tell students to record the information in the third column of their handout.
17. Explain that the 1950 prices are expressed in 1950 dollars. Prices adjusted for inflation are called **real prices**. Refer students to the following Web site: minneapolisfed.org/research/data/us/calc/index.cfm - calc. The site offers a CPI calculator that uses indices to adjust prices for inflation. Students can learn more about the consumer price index by visiting the United States Department of Labor, Bureau of Labor Statistics at: www.bls.gov/data/home.htm.
18. Using the CPI calculator, students can determine what an item or a service purchased in 1950 would be worth in 2004, or what an item purchased in 2004 would be worth in 1950. Tell them to use the calculator to convert 1950 prices to prices for the current year and to record the information in column four on their handout.

Note: If students do not have easy access to the Web site calculator, display Visual 2.3, which includes the answers.

19. Display Visual 2.3 and allow students to check their answers. Discuss the following.
 - A. The CPI calculator indicates that the average price of a house in 1950, converted to 2004 dollars, is \$112,690. Is this close to the average price of a house, below the average price of a house or above the average price of a house today? (*Slightly below.*) So, the prices of houses have increased somewhat faster than most goods and services. In this case, the purchasing power of a \$50 note today is less than it was in 1950.
 - B. The CPI calculator indicates the price of a Ford in 1950 converted to 2004 dollars is between \$10,406 and \$17,579. Is this close to the prices of Fords today? (*Yes.*) So the price of a Ford has increased at about the same rate as most goods and services.



- C. Do you think the quality and the features of Ford cars have improved since 1950? (*Yes. They are safer, obtain better gas mileage, and cause less damage to the environment. They have CD players, air conditioners and heaters, and so on.*)
- D. Would you expect to pay more or less for a car that is of higher quality? (*More.*) Why?
- E. In terms of purchasing power, do people get more or less car for their money today than they did in 1950? (*More.*) In this case, people get more car with their \$50 notes today than people got with their \$50 notes in 1950.
- F. The CPI calculator indicates that the 1950 prices of relatively small televisions, converted to 2004 dollars, are \$1,546 (*Philco*) to \$4,270 (*Admiral*). What is the price of a relatively small television set today? (*19" — \$99*) The cost of televisions hasn't increased, but has decreased relative to most goods and services.
- G. Do you think the quality and features of televisions have improved since 1950? (*Yes.*) In what ways? (*Color, sharper picture, remote control, more channels available, and so on.*)
- H. In terms of purchasing power, do people get more or less television for their money today than they did in 1950? (*More.*) In this case, people get more television with their \$50 notes today than people got with their \$50 notes in 1950.
- I. In 1950, a loaf of bread was \$0.14. The CPI calculator converts that to \$1.09 today. Can you buy a loaf of bread for \$1.09 today? (*Yes.*) So the price of bread has increased at about the same rate as most goods and services.
- J. In 1950, a gallon of gasoline was \$0.27. The CPI calculator converts that to \$2.10 per gallon today. Is gasoline \$2.10 per gallon, less than that or more than that today? (*Nearly that price.*) So the price of gasoline increased at about the same rate as most goods and services.
20. Explain that to know how people's purchasing power has changed since 1950, we need more than price information. We also need to know how people's incomes have changed.
- A. If people's incomes haven't risen as much as prices since 1950, would their purchasing power increase, decrease or stay the same? (*Decrease.*)
- B. If people's incomes have risen more than prices have risen since 1950, would their purchasing power increase, decrease, or stay the same? (*Increase.*)
- C. If people's incomes rose by the same amount as prices since 1950, would their purchasing power increase, decrease, or stay the same? (*Stay the same.*)
21. Tell the students that minimum wage was \$0.75 per hour in 1950, and it is currently \$5.15 per hour. Discuss the following.
- A. In 1950, how many hours would someone working for minimum wage need to work in order to buy a gallon of milk? ($.82/.75 = 1.10$)
- B. In 2004, how many hours would someone working for minimum wage need to work in order to buy a gallon of milk? ($2.79/5.15 = .54$)
- C. In which year was a gallon of milk cheaper in terms of hours worked? (*2004*)
- D. In 1950, how many hours would someone working for minimum wage need to work in order to earn a \$50 note? (*66.67 hours*)
- H. In 2004, how many hours would someone working for minimum wage need to work to earn a \$50 note? (*9.7 hours*)

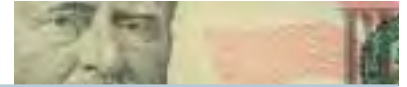


22. Tell students that the median income in 1950 was \$3,319. The CPI calculator converts that to \$24,994.06. The median income in 2002 was \$42,409. This indicates that wages increased at a faster rate than the prices of goods and services. Ask students to determine how many \$50 notes would be required to pay someone \$3,319? What about \$42,409? Ask the students if this is the case, what happened to our purchasing power between 1950 and 2004? (*It increased.*)

Source: 1950—Historical Statistics of the United States, Colonial Times to 1970, U.S. Department of Commerce, Bureau of the Census, p. 297, Series G 189-204. Median Money Income of Families and Unrelated Individuals in Current and Constant (1967) Dollars, by Race of Head: 1947 to 1970.

Source: 2002—Table 1. Household Income by Race and Hispanic Origin and Income Definition: 2001 and 2002. Income in the United States: 2002 Current Population Reports. Consumer Income. September 2003. U.S. Census Bureau.

23. Point out that average income increased faster than prices of other goods and services, and the quality and features of many products have increased as well. So at least in terms of purchasing power, the “good old days” may not have been so good.
24. Have students convert Jackie Robinson’s \$35,000 salary to 2004 prices. Have students compare his baseball statistics to those of current players and his 2004 salary to their salaries. Have students determine how many \$50 notes would be required to pay Robinson’s salary today.
25. Optional: To extend this lesson, have students visit www.bos.frb.org/peanuts, a free Web-based baseball game. Students will review economic concepts while learning about the economics of professional sports.



Visual 2.1

A Picture Is Worth A Thousand Words



Watermark

Hold the bill up to the light and look for the watermark, or faint image, similar to the large portrait of President Ulysses S. Grant. The watermark is part of the paper itself and it can be seen from both sides of the note.

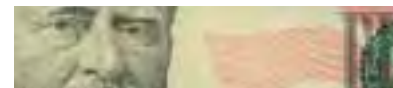


Security Thread

Hold the bill up to the light and look for the security thread, or plastic strip, that is embedded in the paper and runs vertically to the right of the portrait. If you look closely, the words "USA 50" and a small flag are visible along the thread from both sides of the note. This thread glows yellow when held under an ultraviolet light.

Color-Shifting Ink

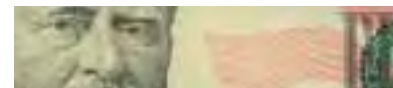
Look at the number "50" in the lower right corner on the face of the note. When you tilt the note up and down the color-shifting ink changes color from copper to green.



Visual 2.2

The Price Is Right, Or Is It?

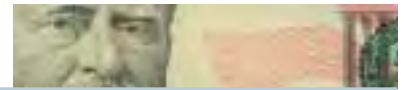
Item	1950	Nominal Price (Current Year Price)	1950 Prices Adjusted Using CPI Calculator
House	\$14,500.00		
Ford Car (4-door)	\$1,339–\$2,262.00		
13" Screen Television	\$199.00		
Television with Sound System	\$549.50		
12" Record (substitute Compact Disc)	\$4.85		
Milk	\$.82/gallon		
Gasoline	\$.27/gallon		
Postage Stamp	\$.03		
Campbell's Pork & Beans	\$.25 for two one-pound cans		
Sirloin Steak	\$.77/pound		
Kraft Mayonnaise	\$.62/quart		



Visual 2.3

The Price Is Right, Or Is It? – Answers

Item	1950	1950 Prices Adjusted Using CPI Calculator
House	\$14,500.00	\$112,690.00
Ford Car (4-door)	\$1,339–\$2,262.00	\$10,406–\$17,579.00
13” Screen Television	\$199.00	\$1,546.00
Television with Sound System	\$549.50	\$4,270.00
12” Record (substitute Compact Disc)	\$4.85	\$38.00
Milk	\$.82/gallon	\$6.37/gallon
Gasoline	\$.27/gallon	\$2.10/gallon
Postage Stamp	\$.03	\$0.23
Campbell’s Pork & Beans	\$.25 for two one-pound cans	\$1.94 for two one-pound cans
Sirloin Steak	\$.77/pound	\$5.98/pound
Kraft Mayonnaise	\$.62/quart	\$4.82/quart



Activity 2.1

A Picture Is Worth A Thousand Words

PRE-1996 NOTES



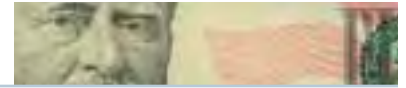
SERIES 1996 NOTES



SERIES 2004 NOTES



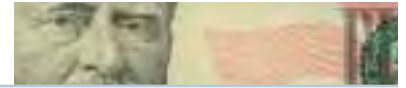
For additional information about the history of U.S. currency, visit www.frbsf.org/currency and view the *American Currency Exhibit*. Also visit www.moneyfactory.com/newmoney and click on *Youth Education* to access downloadable interactive CD-ROM, and view the interactive \$50 note.



Activity 2.2

The Price Is Right, Or Is It?

Item	1950	Nominal Price (Current Year Price)	1950 Prices Adjusted Using CPI Calculator
House	\$14,500.00		
Ford Car (4-door)	\$1,339–\$2,262.00		
13" Screen Television	\$199.00		
Television with Sound System	\$549.50		
12" Record (substitute Compact Disc)	\$4.85		
Milk	\$.82/gallon		
Gasoline	\$.27/gallon		
Postage Stamp	\$.03		
Campbell's Pork & Beans	\$.25 for two one-pound cans		
Sirloin Steak	\$.77/pound		
Kraft Mayonnaise	\$.62/quart		



Section Three: WHOSE PICTURE IS ON THIS NOTE?

CONTENT STANDARDS

National History Standards

Students will:

- 4B. obtain historical data from a variety of sources, including: library and museum collections, historic sites, historical photos, journals, diaries, eyewitness accounts, newspapers, and the like; documentary films, oral testimony from living witnesses, censuses, tax records, city directories, statistical compilations, and economic indicators.
- 4F. support interpretations with historical evidence in order to construct closely reasoned arguments rather than facile opinions.

National Standards in Language Arts

Students will:

- 4. adjust their use of spoken, written, and visual language to communicate effectively with a variety of audiences and for different purposes.
- 7. conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate, and synthesize data from a variety of sources to communicate their discoveries in ways that suit their purpose and audience.
- 8. use a variety of technological and informational resources to gather and synthesize information and to create and communicate knowledge.

OBJECTIVES

Students will be able to:

- identify portraits and vignettes featured on U.S. currency;
- state reasons why individuals and vignettes were featured on U.S. currency; and
- explain why U.S. currency was standardized in the early 1900s.

TIME REQUIRED

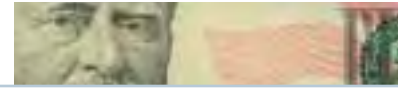
Two to three class periods

MATERIALS

- A transparency of Visual 3.1
- A copy of Activity 3.1 for each group or pair of students
- Internet access

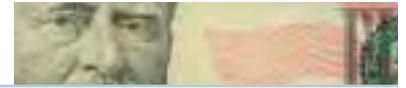
www.moneyfactory.com/newmoney (click on *Youth Education* to access a downloadable interactive CD-ROM, and view the interactive \$50 note)

www.frbsf.org/currency (visit the *American Currency Exhibit*)

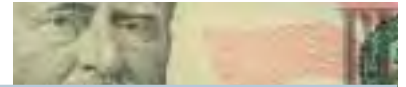


PROCEDURE

- As an introduction, discuss the following:
 - Would you like to have your portrait on the front of a piece of U.S. currency? (*Answers will vary.*)
 - What do you think a person must do to achieve such recognition? (*Answers will vary.*)
 - Whose portrait appears on the \$1, \$2, \$5, \$10, \$20, \$50, and \$100 notes? (*George Washington, Thomas Jefferson, Abraham Lincoln, Alexander Hamilton, Andrew Jackson, Ulysses S. Grant and Benjamin Franklin.*)
 - Why are these portraits on the notes? (*These are famous Americans.*)
- Explain that there are many famous Americans whose faces do not appear on U.S. currency. By law, only the portraits of George Washington, Thomas Jefferson, Abraham Lincoln, Alexander Hamilton, Andrew Jackson, Ulysses S. Grant and Benjamin Franklin may be featured on U.S. currency. If the government wanted to add a new note or feature a new person, the law would have to be changed.
- Explain that until the 1920s, U.S. currency was redesigned often, and there were several types of notes. These included United States Notes, National Bank Notes and Silver Certificates. (For more information about these notes and certificates, visit www.moneyfactory.com.)
- Explain that in 1929, the Bureau of Engraving and Printing (BEP) began printing a redesigned, smaller-sized currency. The size of the currency was reduced from $7\frac{7}{16}$ by $3\frac{1}{8}$ inches to $6\frac{5}{16}$ by $2\frac{11}{26}$ inches. This decision was made so twelve notes could be engraved on one plate instead of eight notes. This resulted in tremendous cost savings for the government. Notes are still printed at this size today.
- Ask the students why it was desirable to standardize U.S. currency. Guide students to recognize that if the currency were standardized it would be easier for citizens to recognize a non-standard or counterfeit note.
- Explain that in 1929, a committee appointed by Secretary of the Treasury Andrew Mellon chose the portraits and vignettes that appear on the faces and backs of today's notes. The individuals featured on the notes were chosen for similar reasons. Most citizens of the time were familiar with these famous people. Citizens would likely have seen portraits of these famous people. As a result, the average citizen would more easily recognize a note on which the portrait had been changed.
- Display Visual 3.1. Refer students to the vignette found on the back of the note. Point out that the vignette features the United States Capitol. Explain that the back of each denomination features an important U.S. building, symbol or scene. The illustration on the back of each piece of currency is called a vignette.
- Divide the students into pairs. Explain that each group will conduct research regarding a portrait or a vignette/symbol found on a U.S. note. Assign groups portraits and vignettes—building, symbol or scene—for \$1, \$2, \$5, \$10, new \$20, new \$50 and \$100 notes.



9. Distribute a copy of Activity 3.1 to each pair of students. Tell students that they should use library resources and/or the Internet to answer the questions for their note. Students may also visit www.moneyfactory.com/newmoney and click on *Youth Education*. This will provide students the opportunity to visit the “History Hall” section of the downloadable interactive CD-ROM to learn about early U.S. currency designs. In addition, students may visit www.frbsf.org/currency and click on the *American Currency Exhibit* to learn about the history of currency in the United States.
10. Each group must develop a brief presentation, including at least two visuals for presentation to the rest of the class.
11. Allow time for the students to work. During the next class period, have the groups share their reports with the class.
12. After the groups have shared their work, ask students to brainstorm a list of more recent historical figures who have made similar contributions to the country, and whose portrait students think should be featured on a U.S. note. List student suggestions on the board. Have students brainstorm a list of other monuments or important symbols or scenes they think should be featured in a vignette on a U.S. note. List student suggestions on the board. Ask students if they were the person to redesign the \$50 note, which of these people, monuments, symbols or scenes would they include.
13. Tell students to select one of the individuals, buildings or symbols listed on the board. Tell them to conduct research about the person, building or symbol they selected and write a persuasive essay explaining why they think their selection should have been featured on the newly redesigned \$50 note. Explain that they must provide evidence to support their choice.
14. Optional Activity: Students and/or teachers may submit student essays to www.moneyfactory.com/newmoney on the *Youth Education* page. In this manner, students from throughout the country can read one another’s essays.
15. Optional Activity: Students can design their own currency by using the features and individuals they have researched. Students can display their currency on posterboard and present their design to the class.



Visual 3.1

A Picture Is Worth A Thousand Words



Watermark

Hold the bill up to the light and look for the watermark, or faint image, similar to the large portrait of President Ulysses S. Grant. The watermark is part of the paper itself and it can be seen from both sides of the note.

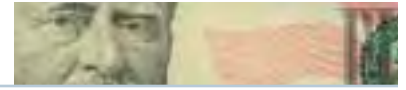


Security Thread

Hold the bill up to the light and look for the security thread, or plastic strip, that is embedded in the paper and runs vertically to the right of the portrait. If you look closely, the words "USA 50" and a small flag are visible along the thread from both sides of the note. This thread glows yellow when held under an ultraviolet light.

Color-Shifting Ink

Look at the number "50" in the lower right corner on the face of the note. When you tilt the note up and down the color-shifting ink changes color from copper to green.



Activity 3.1

Why Does This Appear On Our Currency?

Use library resources and/or the Internet to answer the following questions regarding the portrait or vignette you were assigned. When you have answered the questions, use the information to prepare a presentation for the rest of the class. Your presentation must include at least two visuals.

Portraits

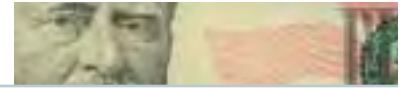
1. Who is the individual featured in the portrait?
2. Why was this person selected?
 - When did he or she live?
 - What jobs did this individual hold?
 - What service did he or she provide to the country?
 - What is this person's most important contribution to the United States?

Vignettes—Building or Scene

1. What is the name of this building or what scene is illustrated?
2. Why was this building or scene selected?
 - Where is the building located or where did the scene take place?
 - What important activities took place in this building or currently take place in the building or why is this scene so important?

Vignettes—Symbol

1. What is the name of this symbol?
2. What are the important features of this symbol?
3. Where else is the symbol used?



Section Four: JOBS MAKING MONEY

CONTENT STANDARDS

Voluntary National Content in Economics

Students will:

15. know that investment in factories, machinery, new technology, and the health, education, and training of people can raise future standards of living.

National Standards in Language Arts

Students will:

4. adjust their use of spoken, written, and visual language to communicate effectively with a variety of audiences and for different purposes.
7. conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate, and synthesize data from a variety of sources to communicate their discoveries in ways that suit their purpose and audience.
8. use a variety of technological and informational resources to gather and synthesize information and to create and communicate knowledge.

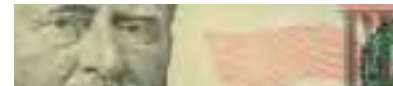
OBJECTIVES

Students will be able to:

- define human capital and investment in human capital;
- identify occupations at the Bureau of Engraving and Printing;
- explain why many unique skills and tools are required to produce currency;
- identify features of the newly redesigned \$50 note;
- explain the roles of the U.S. Department of the Treasury, the Bureau of Engraving and Printing, the Federal Reserve and the U.S. Secret Service in designing, printing, distributing and protecting the integrity of currency and in educating the public about newly redesigned currency; and
- explain the link between investment in human capital and earning potential.

TIME REQUIRED

Two class periods



MATERIALS

- A transparency of Visuals 4.1, 4.2 and 4.3
- A copy of Activities 4.1 and 4.2 for each group of students
- A piece of chart paper and a marker for each group of students
- Internet access

www.federalreserveeducation.org

www.secretservice.gov

www.ustreas.gov

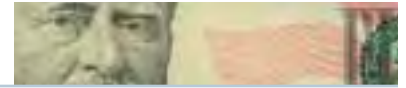
www.moneyfactory.com

www.federalreserve.gov/careers/default.cfm

www.moneyfactory.com/newmoney (click on *Youth Education* to access a downloadable interactive CD-ROM, and view the interactive \$50 note)

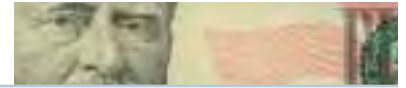
PROCEDURE

1. As an introduction, discuss the following:
 - A. Have you ever left currency in your pocket and had it go through the washing machine and dryer? (*Answers will vary.*)
 - B. How did the currency hold up? (*Very well.*)
 - C. Have you ever left a piece of loose leaf or other paper in your pocket and had it go through the washer and dryer? (*Answers will vary.*)
 - D. How did the paper hold up? (*Usually it disintegrates.*)
2. Point out that U.S. currency is made of paper, but it washes and dries very well. As a matter of fact, it is quite durable. The average life of a \$50 note is 55.4 months or about 4^{1/2} years.
3. Explain that currency is made from a special type of paper. The paper is part linen and part cotton. This makes it more durable than wood-pulp paper. It is purchased from the Crane Company, a stationery firm in Massachusetts. This company has supplied the special currency paper to the government since the late 1800s. This is only one of the many unique factors of production required to make U.S. currency.
4. Point out that there is both art and science to creating new currency. For example, producing currency requires the special skills of engravers who cut the portraits, numbers, and vignettes into soft-steel plates from which the currency is printed. There are also engravers at the stationery company who provide the three-dimensional watermark that is engraved on the paper. The oil-based ink is patented (a bit of chemistry). Review all the important scientific changes made to the newly redesigned \$50 note to prevent counterfeiting and protect the integrity of U.S. currency. Students can visit www.moneyfactory.com/newmoney to view the interactive \$50 note highlighting the security features.
 - **Watermark:** Hold the bill up to the light and look for the watermark, or faint image, similar to the large portrait. The watermark is part of the paper itself and it can be seen from both sides of the note. This feature was first introduced in the Series 1996 currency.
 - **Security Thread:** Hold the bill up to the light and look for the security thread, or plastic strip, that is embedded in the paper and runs vertically to the right of the portrait. It was first introduced in the



Series 1996 currency. If you look closely, the words “USA 50” and a small flag are visible along the thread from both sides of the note. The security thread in the Series 2004 \$50 note is slightly wider than it has been in previous notes. A wider thread makes it easier for the public to read the words “USA 50” and verify the authenticity of the note. This thread glows yellow when held under an ultraviolet light.

- **Color-Shifting Ink:** Look at the number “50” in the lower right corner on the face of the bill. When you tilt the note up and down, the color-shifting ink changes from copper to green. The color shift is more dramatic in the newly redesigned notes. This makes it even easier for people to check to be certain their currency is genuine. This feature was first introduced in the Series 1996 currency.
- **Symbols of Freedom:** There are new symbols on the \$50 note that represent the American flag. The traditional stars and stripes of the United States flag are printed in blue and red behind the portrait of Ulysses S. Grant. A field of blue stars is located to the left of the portrait, while three red stripes are located to the right of the portrait. A small metallic silver-blue star is also located to the right of the portrait. The symbols of freedom will differ for each denomination.
- **Color:** The most noticeable difference in the newly redesigned \$50 note is the addition of subtle background colors of blue and red to both sides of the note. Also, small yellow 50s have been printed in the background on the back of the note. The Series 2004 notes mark the first time in modern American history that U.S. currency will include colors other than black and green. Different background colors will be used for the different denominations. This will help everyone to tell denominations apart.
- **Updated Portrait and Vignette:** The oval borders and fine lines surrounding the portrait of President Grant on the face and the United States Capitol vignette on the back of the note have been removed. A vignette is a drawing of a scene, building, or symbol found on the backside of U.S. currency. The portrait has been moved up and shoulders have been extended into the border. Additional engraving details have been added to the vignette background.
- **Microprinting:** Microprinted words are very small, so small they are hard to replicate. Microprinting was included in the Series 1996 currency. However, some changes have been made in the new \$50 note. There are three areas on the face of the new \$50 note that include microprinting: 1) in the two blue stars to the left of the portrait, the words “FIFTY,” “USA,” and the numeral “50” are microprinted; 2) the word “FIFTY” is repeated within both side borders of the note; and 3) the words “THE UNITED STATES OF AMERICA” appear on President Ulysses S. Grant’s collar, under his beard.
- **Low-Vision Feature:** There’s a large number “50” in the lower right corner on the back of the note. This change was first introduced in the Series 1996 currency. This feature is designed to make it easier for people to distinguish among their currency.
- **Federal Reserve Indicators:** To the left of the portrait is a symbol that represents the entire Federal Reserve System. A letter and number beneath the left serial number identify which Federal Reserve Bank issued the note. This change was first introduced in the Series 1996 currency. Explain that the Federal Reserve distributes new currency throughout the country via twelve Federal Reserve Banks. The Federal Reserve is also responsible for controlling the money supply and guarding against inflation. (For additional information about the Federal Reserve, visit www.federalreserveeducation.org.)

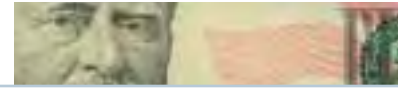


- **Serial Number:** The serial number is a unique combination of eleven numbers and letters that appear twice on the face of the note. On the new \$50 note, the left serial number has shifted slightly to the right compared with the previous design.

Note: As an optional activity, have a newly redesigned \$50 note and magnifying glass available so students can have a close up view of the new and enhanced features of the note.

5. Explain that there are many unique aspects to the production of currency and to the enforcement of regulations that protect its integrity. Explain that the following organizations are involved in these activities.
 - The U.S. Department of the Treasury (www.ustreas.gov)
 - The U.S. Secret Service (www.secretservice.gov)
 - The Federal Reserve (www.federalreserveeducation.org)
 - The Bureau of Engraving and Printing (www.moneyfactory.com)
6. Divide the students into small groups. Provide access to the Internet. Distribute a copy of Activity 4.1 to each group of students. Have students visit the Web sites for each of the organizations listed above to find answers to the questions on the handout. Have groups of students share their information with the class.
7. Point out that there are many jobs related to the design and printing of currency. These include engravers who specialize in various aspects of the note, such as portraits and vignettes or numbers. The Bureau of Engraving and Printing hires engineers, attorneys and many others.
8. Explain that human capital is the skill, education, and talent human resources (people) possess. People can invest in their human capital through on-the-job training, education, practice, apprenticeships and so on.
9. Tell students to work in groups to conduct some research into the types of jobs available at the Bureau of Engraving and Printing and the human capital required for these jobs.
10. Divide students into small groups. Display a transparency of Visual 4.1. Explain that this is a list of some jobs people perform at the Bureau of Engraving and Printing.
11. Distribute a copy of Activity 4.2 to each group. Provide access to the Internet. Tell students to visit www.moneyfactory.com and begin their research by answering the first two questions on Activity 4.2. (1. Fort Worth, Texas and Washington, D.C.; 2. The Bureau of Engraving and Printing also produces copies of the Declaration of Independence, sheets of currency for display, 5 lb. bags of shredded currency, postage stamps, engraved invitations to government functions and documents for other government agencies.)
12. Assign groups of students one or two jobs from the list on Visual 4.1. Tell students to conduct research to determine the type of work people who hold this job at the Bureau of Engraving and Printing would do. Groups should continue to work to answer the remaining questions on Activity 4.1.

Note: Brief job descriptions for each of these occupations can be found on Visual 4.2. Share the information on the visual with students after they have had some time to search for the information online. Have students visit www.moneyfactory.com/newmoney and click on *Youth Education* to access the interactive CD-ROM where they can learn about the production of currency. Also, as students review the job descriptions, please make them aware of the following information.

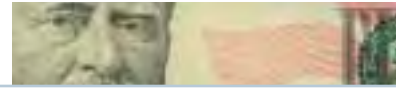


Offset printing is the technique used to add color to our money. The printing press that adds background color to the currency is called a Simultan Press, which is 52 feet long and weighs 72 tons. The Bureau of Engraving and Printing's Washington, D.C. and Fort Worth, Texas facilities use Simultan printing presses. Color is added to sheets of currency that are fed through the press and printed on both sides of the currency sheet simultaneously. The eight printing units of the press are capable of printing 14 colors at one time. The sheets are scanned to make sure the color quality meets a specific standard.

The next phase of currency production is called Intaglio Printing. Intaglio is a printing process in which a design or text is recessed below the surface of a plate so when ink is applied and the excess is wiped off, ink remains in the grooves of the plates for the transfer to paper. The Bureau of Engraving and Printing's new "intaglio-10" printing presses are capable of printing three-color currency at 10,000 sheets per hour. The printing process involves the printing of currency paper between the plate and impression cylinders at between 20 to 40 tons of pressure. Currency backs are printed first with green ink and are then held in vaults to dry for about 72 hours before the currency fronts are printed. Face printing involves two black inks and, for some denominations, color-shifting ink.

13. When students have completed their research, distribute chart paper and markers to each group. Display a transparency of Visual 4.3 and tell students these are the salaries for the occupations they researched. Tell groups to list the occupation and its salary, the investments in human capital required and other interesting or unusual information about the jobs. Also ask students to determine how many \$50 notes would be required to pay the annual salary for the occupations they researched.
14. Ask the groups to post their chart paper. Allow students to explore career options by walking around the classroom reading about the various occupations.
15. Point out that the production of U.S. currency and other security documents require a variety of specialized workers. Ask students to compare the levels of education and training required for these jobs to the salaries paid. Ask them if they can draw any generalizations about levels of investment in human capital and income earning potential. (*In general, greater investment in human capital offers greater earning potential.*)
16. Explain that each of the other organizations they learned about in this section of the lesson employ people whose jobs are related to the design, printing, distribution, and protection of U.S. currency and/or to educating the public about newly redesigned currency, such as the \$50 note. As an individual assignment, have students choose one of the following organizations.
 - The U.S. Department of the Treasury (www.ustreas.gov)
 - The U.S. Secret Service (www.secretservice.gov)
 - The Federal Reserve (www.federalreserve.gov/careers/default.cfm)

This time, students should visit the employment or jobs available sections of the organization's site and select a job in which they are interested. Then students should conduct research to determine the type of human capital required for the job selected. They should also write a brief paragraph explaining how this job might be related to redesign, printing, distribution and integrity of new notes, such as the newly redesigned \$50 note, or how the job is related to educating the public about newly redesigned notes, such as the \$50 note.



Visual 4.1

Jobs At The Money Factory

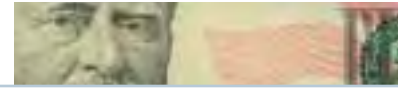
Picture Engraver (Bank Note)

Letter and Script Engraver (Bank Note)

Photoengraver (Electronic Pre-press)

Sculptural Engraver (Bank Note)

Plate Printer



Visual 4.2

Jobs At The Money Factory—Job Descriptions

Picture Engraver (Bank Note)

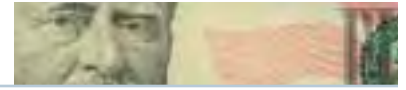
A person holding this position is responsible for original engravings and the laying out and repairing of master plates, working plates, and surface pieces. A Picture Engraver produces portraits, landscapes, figures and ornamental engravings which are used on plates for the reproduction of United States currency. This position requires:

- a ten-year apprenticeship described in the "Training Program for Apprentice Engravers" or its equivalent;
- ability to trace the desired model or drawing by freehand on a sheet of gelatin, with the aid of a strong magnifying lens;
- ability to transfer a wax impression of a tracing to a polished steel die;
- ability to reproduce tone values of a model in line on a steel die, by engraving dots and dashes of various directions, depth, width, and spacing and to artistically represent the textures needed in a portrait;
- ability to restore dies of previously engraved portraits by applying methods to the original engravings that have become damaged or worn; and
- ability to engrave for multicolor work by making separate dies for each color to be represented in the model.

Letter and Script Engraver (Bank Note)

A person who holds this position works in the Product Design and Engraving Section. This person is responsible for original letter and script engravings and the laying out and repairing of master plates, altos, working plates, and surface pieces. He or she must be trained in all pantograph machine operations. This person must be able to draw and engrave on steel dies or plates in script white and black lettering (Gothic, Old English, Roman and other various types of letters). This position requires:

- a seven-year apprenticeship as described in the "Training Program for Apprentice Letter and Script Engraver in the Bureau of Engraving and Printing" or its equivalent;
- knowledge and work-related experience in using gravers scrapers, "marking-in" points, ruling machines, and rollers for laying etching ground;
- ability to work fast and follow dead-lines;
- ability to use a die covered with transparent acid resisting etching grounds, carefully ruling a series of lines with a diamond point placed in a ruling machine;
- knowledge of the construction and application of various letters of the alphabet;
- knowledge of acid and its corrosive action upon steel;
- knowledge to inspect and make ready for printing all electrolytic plates, including final chrome inspection;
- ability to perform duties in the safest manner, observing all safety rules, regulations, and guidelines;
- knowledge of mechanical drawing; and
- good eyesight, coordination, and dexterity.



Visual 4.2 (Continued)

Jobs At The Money Factory—Job Descriptions

Photoengraver (Electronic Pre-press)

A person holding this position works in the digital pre-press area of the Photoengraving Section. This individual focuses on digital pre-press production as related to United States currency production. The photoengraver applies and practices techniques and procedures using a variety of electronic publishing software and hardware applications. This position requires:

- journeyman photoengraver with proficiency in electronic pre-press applications;
- ability to work within a complete digital pre-press, work-flow system utilizing a cross-platform file server;
- knowledge and work-related experience of digital page layout, graphic and image editing software programs;
- knowledge and work-related experience of page imposition, electronic imaging and processing;
- knowledge and work-related experience of conventional film assembling methods; and
- knowledge of electronic pre-press equipment including Macintosh and PC workstations, digital proofing devices, computer to film devices and computer to plate devices.

Sculptural Engraver (Bank Note)

A person with this position works in the Product Design and Engraving Section. He or she is responsible for tracing from bank note designer models, transferring tracings to metal, and engraving designs which are subsequently used in the manufacture of securities, seals, and Federal Reserve surface pieces. This position requires:

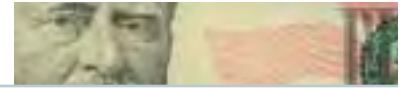
- an apprenticeship of seven years in the craft of sculptural engraving;
- equivalent progressive experience in the art of hand engraving;
- ability to cut square-style and Roman-style lettering and to emboss in steel; and
- skills in designing; manual dexterity with various engraving tools.

Plate Printer

A person with this position works in the Office of Currency Production. This individual performs work utilizing a variety of complex and usually high-speed plate printing presses. He or she is responsible for press operations, and for meeting quantity and quality standards of printing.

This position requires:

- successful completion of the four-year plate printer apprenticeship or the two-year plate printer (intermediate) program;
- continual update of technical knowledge of new presses and plate-printing techniques; and
- ability to lift 75 pounds.



Visual 4.3

Jobs At The Money Factory—Salaries

Picture Engraver (Bank Note)

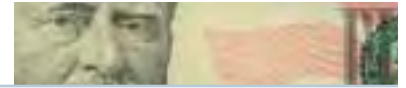
- Apprentice 1st year from \$16.71 to \$17.46 per hour
- Apprentice 2nd year from \$18.71 to \$19.54 per hour
- Apprentice 3rd year from \$21.07 to \$22.01 per hour
- Apprentice 4th year from \$24.40 to \$25.49 per hour
- Apprentice 5th year from \$28.39 to \$29.66 per hour
- Journeyman from \$48.31 to \$50.45 per hour
- Leader from \$116,039 to \$121,191 per year
- Assistant Supervisor from \$126,589 to \$132,210 per year

Letter and Script Engraver (Bank Note)

- Apprentice 1st year from \$19.35 to \$22.19 per hour
- Apprentice 2nd year from \$23.19 to \$26.22 per hour
- Apprentice 3rd year from \$27.04 to \$30.26 per hour
- Apprentice 4th year from \$30.92 to \$34.30 per hour
- Apprentice 5th year from \$34.77 to \$38.34 per hour
- Apprentice 6th year from \$38.64 to \$42.88 per hour
- Apprentice 7th year from \$43.49 to \$47.92 per hour
- Journeyman from \$48.31 to \$50.45 per hour
- Leader from \$116,039 to \$121,191 per year
- Assistant Supervisor from \$126,589 to \$132,210 per year

Photoengraver (Electronic Pre-press)

- Basic from \$31.84 to \$33.26 per hour
- Wage Scale 1 from \$33.40 to \$34.89 per hour
- Wage Scale 2 from \$35.06 to \$36.62 per hour
- Leader from \$84,287 to \$88,046 per year
- Assistant Supervisor from \$88,120 to \$92,050 per year
- Supervisor from \$99,653 to \$104,098 per year



Visual 4.3 (Continued)

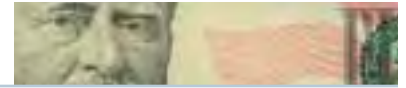
Jobs At The Money Factory—Salaries

Sculptural Engraver (Bank Note)

- Apprentice 1st year from \$19.35 to \$22.19 per hour
- Apprentice 2nd year from \$23.19 to \$26.22 per hour
- Apprentice 3rd year from \$27.04 to \$30.26 per hour
- Apprentice 4th year from \$30.92 to \$34.30 per hour
- Apprentice 5th year from \$34.77 to \$38.34 per hour
- Apprentice 6th year from \$38.64 to \$42.88 per hour
- Apprentice 7th year from \$43.49 to \$47.92 per hour
- Journeyman from \$48.31 to \$50.45 per hour
- Assistant Supervisor from \$126,589 to \$132,210 per year

Plate Printer

- Apprentice 1st year from \$19.12 to \$21.75 per hour
- Apprentice 2nd year from \$22.60 to \$25.38 per hour
- Apprentice 3rd year from \$26.04 to \$29.01 per hour
- Apprentice 4th year from \$29.55 to \$32.63 per hour
- Intermediate 1 from \$31.27 to \$32.63 per hour
- Wage Scale 1 from \$34.73 to \$36.24 per hour
- Assistant Supervisor (3-20) from \$91,368 to \$95,342 per year
- Supervisor from \$108,050 to \$112,750 per year
- Assistant General Supervisor from \$112,204 to \$117,085 per year



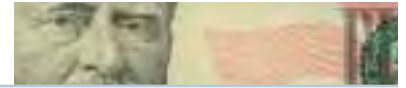
Activity 4.1

How Are These Organizations Involved In The Production Of The New \$50 Note?

Visit the following Web sites to answer the questions on this handout.

- The United States Department of the Treasury (www.ustreas.gov)
- The United States Secret Service (www.secretservice.gov)
- The Federal Reserve (www.federalreserveeducation.org)
- The Bureau of Engraving and Printing (www.moneyfactory.com)

1. What role did each organization have in the redesign and development of new \$50 note?
2. What role does each organization serve to prevent counterfeiting of the new \$50 note?
3. What role, if any, does each organization have in the printing and distribution of the new \$50 note?
4. Why does each of these organizations want to prevent counterfeiting of the new \$50 note as well as other currency?
5. What role does each organization play in educating the public about the new \$50 note?



Activity 4.2

How Many People Does It Take To Print A \$50 Note?

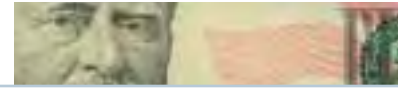
List the job(s) your group was assigned.

Visit the Bureau of Engraving and Printing (BEP) at www.moneyfactory.com:

1. Where are the two locations of the Bureau of Engraving and Printing?
2. Besides currency, what other products does the BEP produce?

Using the Internet and library resources, answer the following questions about each job your group was assigned.

1. What tasks at the BEP does a person with this job perform?
2. In what ways is this job related to the general operation of the BEP, the production of currency, and/or the production of other products?
3. Identify the human capital a person who has this job must have.
 - Level of education
 - Apprenticeship or experience
 - Special skills or abilities
4. If a person wanted to have this job in the future, what investments in human capital would the person have to make?
5. What is the annual salary for this position?
6. What is something interesting or unusual about this job?
7. Were you aware that this occupation existed?
8. Is this an occupation you might consider as a career?



Thank you for teaching your students about the newly redesigned \$50 note, part of Series 2004. In an effort to combat currency counterfeiting, the Federal Reserve and the Department of the Treasury want to create as much awareness around the redesigned currency as possible. The government appreciates your contribution to improving academic achievement among America's youth.

The government is interested in your feedback.

Please visit www.moneyfactory.com/newmoney and go to the *Youth Education* page to fill out a survey on how this lesson plan helped you, how you incorporated it into your curriculum, and what your students liked about it. If you have any questions please submit them at the same location at www.moneyfactory.com/newmoney.