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THE EVOLUTION OF MONEY



Instructor's Note: *The first five lesson plans (#1a through #1e) are designed as a modular set to be used together. They consist of a series of discussions covering various parts of the video. You may use them in several ways. One is to alternate between discussions and watching segments of the video. There are three pause points on the video. The discussions are designed to fit with these points. The first lesson (#1a) fits before the video begins; lessons #1b through #1d fit well at the three pause points; and the final one (#1e) fits best at the end of the video segment. Alternatively, the video can be viewed without interruption and the discussions divided between topics to be discussed before and after viewing. No continuity will be lost if some discussions are skipped.*

Because much of this material may be unfamiliar to teachers, each of the lessons has an extended presentation of background information for teachers. This information, along with additional materials from the references cited in the section called "For More Information," should help you to be an informed discussion leader.

Lesson Plan #1a: What Is Money and Why Do We Need It?

Grade Level: 9–12

Time Required: 10–15 minutes, or more if desired

Overview:

This lesson is a guided discussion about the nature of money. The video discusses many ways that money has changed and is changing due to the development of electronic communication. This discussion would work well as a preview to viewing the video or after viewing.

Objectives:

This discussion encourages students to reflect on fundamental characteristics of money. It helps students to realize why we need money in modern economies, noting that we do not use money in many transactions among family and friends.

Related National Standards:

NCEE Standard 11: Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.

Materials:

VCR to view the video segment before or after the discussion

Background Information for Teachers:

• **Functional Definitions of Money**

Economists define money to be any commodity that is used as a means of payment. As the first segment of the tape shows, many different commodities have played the role of money through history and recent trends have allowed money to exist without any physical manifestation at all, simply as entries in a computerized database.

A means of payment—money—is whatever we exchange for goods and services that we buy. After we give someone the appropriate amount of money, our indebtedness is fully extinguished. (This is why we often treat credit cards as something subtly different from money: after we “pay” with a credit card, we still owe money to the issuer of the credit card.)

Another important role that money plays is to act as a “unit of account.” This means that the prices of all other commodities are measured in terms of money.

• **Why Do We Use Money for Some Transactions and Not Others?**

It sometimes seems like money is everywhere in our society, but we can learn a lot about money by looking at the places where money is missing. Family transactions rarely use money, nor do favors among friends.

Why is it that these transactions among close partners do not require money? Because we don't feel the need to keep track of who has done how much for whom. Perhaps in a utopian world, everyone could always be trusted to consume no more goods and services than he or she produced for others, but it seems unlikely that a large-scale, impersonal economy like ours could ever function without keeping track of what people earn and what they spend.

Think about keeping track of the runs scored in a baseball game. One way to do this would be for the umpire to give some kind of token—perhaps a coin or a piece of paper—to each player who scores a run. The team with the most tokens at the end of the game wins. But we are equally comfortable keeping track of the baseball score with marks on a scorekeeper's card, numbers on a scoreboard, or even bytes in a database stored in a scorekeeper's computer. Money is how we keep track of who in the economy has earned and spent income. The dollar serves as both the unit in which we measure (the runs of the money game) and the name of the tokens that we use to represent them. Modern money is a combination of various tokens (coins and bills) and entries in written or computerized databases (bank accounts).

• **Why a Single Money Is Useful**

Money is a social contrivance that has emerged naturally in virtually every society that has moved beyond the most primitive state. Once it becomes necessary to keep track of how much people have earned and spent, making transactions without money quickly becomes impossible. In a society with only barter transactions, exchanges can occur only when there is a double coincidence of wants. For example, if you, an economics teacher, wanted to go to a hockey game, you would need to find two hockey teams, referees, a rink owner, etc. all of whom wanted to learn an economics lesson (or who would accept in exchange for their services something else you could offer).

Obviously, modern economies could not have developed without some small set of commodities (money) emerging as the ones that are universally accepted in transactions. We accept this money in exchange for the things we sell because we are confident that others will accept it when we want to buy. You accept your salary in the form of money because you know that you can use it to buy things like tickets to hockey games.

Activity:

The following might be suitable lead-ins for getting a discussion started that covers the idea of what money is:

- Have class members name all the things they think qualify as money. List these things on the board, then ask students to decide what all these things have in common: making payments.
- Ask class members to consider what transactions they use money for and which ones they do not. Example: if they get a drink from the refrigerator at home they do not pay, but if they get one from the refrigerator at a convenience store they do. Use this to get at the idea of trust and keeping track of income and expenditures.
- Use the hockey example above (in Why a Single Money Is Useful or another of your choosing) to help students to think about how difficult it is for two people to find a barter transaction that satisfies both.
- Could we have more than one money at the same time? (Yes, but it is less convenient. Think about popular tourist areas that may accept foreign currencies as well as the domestic one.)

Assessment Recommendations:

Following this discussion, students should know what money does and why we use it for some transactions but not for others. Assessment may be based on creative participation in the discussion. Alternatively, essay questions similar to the following could be used on an exam or quiz:

- How would you buy a candy bar if there were no such thing as money?
- Why do we use money to obtain goods in some circumstances and not in others? On any given occasion, what determines whether we need money or not?

For More Information:

Most textbooks written for college courses in money and banking contain introductory chapters that describe the nature and history of money.

Among the better-known of these are:

- Mishkin, Frederic. *The Economics of Money, Banking, and Financial Markets*, 6th ed. Reading, Mass: Addison Wesley Longman, 2001.
- Miller, Roger L. and David VanHoose. *Money, Banking, and Financial Markets*. Cincinnati, Ohio: South-Western College Publishing, 2001.
- Ritter, Lawrence, William Silber, and Gregory Udell. *Principles of Money, Banking, and Financial Markets*, 10th ed. Reading, Mass: Addison Wesley Longman, 2000.

At a very elementary level, a comic book entitled *The Story of Money* (with a teacher's guide) is available (free) from the Federal Reserve Bank of New York (<http://www.newyorkfed.org>).

Many other publications on money are available through the various Federal Reserve Banks as well, and they are usually free. The New York Fed maintains a searchable and topic-indexed Public Information Catalog for the entire Federal Reserve System at <http://app.ny.frb.org/cfpicnic/>. Most Federal Reserve materials are available in multiple copies at no cost; many are available online as well.

An excellent, but quite advanced, source of information on the nature of markets and money is:

- Goodhart, Charles, *Money, Information and Uncertainty*, 2nd ed. Cambridge, Mass.: MIT Press, 1989, Chapters 1 and 2.

Lesson Plan #1b: The Many Forms of Money

Grade Level: 9–12

Time Required: 10–15 minutes, or more if desired

Overview:

This lesson is a guided discussion about what forms money can take. It asks students to think about characteristics of money that are important, such as durability, portability, divisibility, and ease of authentication. This discussion could take place at the first pause in the video, which occurs after N minutes and M seconds. Alternatively, this discussion could be appended to the discussion described in Lesson Plan #1a: “What Is Money and Why Do We Need It?”

Objectives:

To deepen students’ understanding of the characteristics of money and to encourage them to think about the important concepts behind something they use every day.

Related National Standards:

NCEE Standard 11: Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.

Materials:

VCR to view the video segment before or after the discussion

Background Information for Teachers:

• **Commodity Money vs. Fiat Money**

Economists distinguish between two basic kinds of money. Commodity money has a market value as a good that (at least approximately) equals its value as money. Gold was the quintessential commodity money because the value (as money) of a gold coin was typically no more and no less than the value (as a metal) of the gold in the coin.

Through history, many different commodities have served as money. Native Americans in what we now know as New England used wampum (shells), early Virginia settlers used tobacco leaves, and prisoners of war in a World War II camp used cigarettes. (See the fascinating account by R. A. Radford, *The Economic Organization of a P.O.W. Camp*, *Economica* 12, November 1945, 189–201.) However, societies that integrated with Mediterranean and Western European culture usually adopted gold and/or silver as the monetary commodity.

Convertible paper money became widespread in the eighteenth and nineteenth centuries. A respected individual or company, eventually a bank, would issue a distinctively printed note, which was a piece of paper that could be redeemed for specie (gold or silver) on demand. Once people got used to paper money, redemption was rare as long as the issuer of the note was regarded as honest and solvent. Governments replaced banks as issuers of convertible paper money in the late nineteenth and twentieth centuries. Modern money is no longer backed by specie or any other tangible commodity. We are willing to hold unbacked, fiat money because we are confident that others will accept it in payment, just as our ancestors’ trading partners were willing to accept gold coins two centuries ago.

• **Characteristics of a Good Money**

A successful money must have several properties. It must be durable so that it can be exchanged many times without wearing out. If a piece of money wears out and becomes unusable, then the last person to accept it takes a loss. In this situation, people would prefer to own new money rather than old money, since the older the piece of money the more likely it is that the holder will end up being unable to redeem it. It would be very inconvenient if worn dollar bills were worth, say, only \$0.95 compared to new bills. Gold and silver are very durable because they do not rust. In the case of modern paper money, which does wear out fairly quickly, we get around the durability problem because the issuer stands ready to accept recognizable but worn bills at face value in exchange for new ones.

Portability is another important characteristic that a successful money must have. The amount of purchasing power required to make common payments must be convenient to carry. Because gold and silver are rare and, therefore, valuable, a small amount of them (a few coins perhaps) is sufficient to buy substantial amounts of less valuable commodities such as grain, lumber, or nails.

Another important characteristic is divisibility. Although there are reports that cows have in some places been used as

a medium of exchange, this seems impractical because it would be impossible to pay for items costing less than one cow.

A final crucial characteristic of a good money is recognizability. If it is difficult for people to distinguish precious monetary metals from less valuable metals, then other means, such as coinage, must be found to make gold and silver money more recognizable. The earliest coins are thought to have been made by the Lydians in the 7th century B.C. Full-bodied coins are stamped to certify the weight and purity of the metal they contain. This eliminates the need for people accepting coins to weigh and assay them in order to determine their value. Modern coins are not full-bodied in that they contain precious metals of value less than the monetary value stamped on them. We accept these coins, just as we accept unbacked paper money, because we know that others will.

A final historical point of interest concerns the milling of coins: the little grooves on the edges of American quarters and dimes. This practice was introduced to prevent clipping, which was the shaving of slivers off the edges of full-bodied coins. Without milling, you could slice a tiny bit of gold or silver off the edge of your coins and still pass them off as having full value. Eventually, you would accumulate a pile of metal slivers of considerable value while the coins themselves would become worth less.

• **Convertible Bank Notes as Alternative to Coins**

Although coins made of specie are relatively valuable, it is inconvenient to carry sufficient quantities to make large transactions. Paper money has the advantage that a \$100 bill is no heavier or bulkier than a \$1 bill. Historians trace the origins of paper money to deposit receipts issued by goldsmiths. Individuals would bring gold to the goldsmith for safe storage, receiving a paper receipt in exchange. This introduced additional steps into each transaction: the buyer would take the receipt to the goldsmith, obtaining gold, then transfer the gold to the seller, who would then take the gold back to the goldsmith to get a new receipt. Eventually, people realized that they could just transfer the receipt from buyer to seller and save two trips to the goldsmith, and the receipts began to circulate as paper money.

Once the paper money began to circulate widely, there was less need for individuals to withdraw their gold, and the goldsmiths realized that they didn't really need to keep all of the gold on hand. Instead, they could lend some of the gold to borrowers willing to pay interest, keeping only a fractional reserve of gold to service the expected flow of withdrawals. At this point, the goldsmiths became what we would today call a commercial bank.

Although modern banks do not issue currency, checks are similar in many ways. To see this, think about a cashier's check (where the check-writer is known to have sufficient balance to cover the check) for \$100 written to Bearer. Such a check could, in principle, circulate exactly as a \$100 bill would. The basic difference between checks and privately issued currency is that the checks are ordinarily retired after being spent only once, whereas the currency continues to circulate until it deteriorates physically.

The track record of privately issued currency was mixed. In some countries (Scotland, for example), privately issued bank notes were accepted at their face value over wide areas. In others (such as the western United States in the 1840s), many banks issued notes that were not adequately backed by valuable assets or made it very difficult for note-holders to redeem them for specie. People soon began avoiding notes issued by these wildcat banks, which lowered their value relative to those of sound banks. Because of the proliferation of notes of varying value, merchants had to look up unfamiliar notes in published indexes in order to ascertain their authenticity and market value.

As a result of the problems associated with wildcat banking in the United States, currency issue came to be dominated by the U.S. Treasury in the last half of the nineteenth century, then by the Federal Reserve System after its founding in 1913. For much of this period, the government backed its dollar bills explicitly by gold and/or silver at fixed conversion rates. The gold standard reached its zenith in the period from 1870 to 1914, with European and American currencies being convertible into gold.

• **Inconvertible Currencies**

Even in periods (such as the gold standard era) when currencies were backed by specie, governments sometimes suspended the convertibility of their currencies during crises or wars. When the disturbance passed, convertibility was usually resumed and any extra, unbacked bills that were issued during the crisis were retired.

However, World War I was so long and expensive that many countries found it very difficult to retire all the extra currency they had issued to finance their military spending. Germany, Austria, and other central European countries experienced hyperinflation in the 1920s as a result of the burden of war debts and reparations. Even Britain suffered a painful deflation and depression in the 1920s as it tried to resume convertibility between the pound and gold at the prewar price. Both Britain and the United States abandoned the gold standard early in the early 1930s as their economies tumbled downward in the Great Depression. The gold standard never recovered as World War II followed on the heels of depression.

Near the end of World War II, economists and world leaders met in Bretton Woods, New Hampshire,

to formulate a new monetary system for the postwar world. The Bretton Woods system featured a dollar that was convertible into gold, with all other currencies being convertible into dollars, but not directly into gold.

Dollar convertibility under the Bretton Woods system was incomplete because only foreign governments and central banks were allowed to redeem dollars for gold. During most of the 1950s and 1960s, American citizens and businesses were not allowed to hold monetary gold—only functional gold such as jewelry could be held. Because foreign governments rarely tried to redeem dollars, the U. S. monetary authorities could issue vast quantities of dollars with relatively little backing in gold reserves.

The American government took advantage of this opportunity during the 1960s to fund increasing expenditures for the Vietnam War and domestic social programs. By 1970, the expansion of the supply of dollars had raised the prices of goods in dollar terms by 30 percent relative to 1960. In response to the declining value of the dollar, the French government threatened to provoke a crisis by demanding gold for its reserves of dollars. In response, President Nixon finally ended the convertibility of the dollar into gold in August of 1971.

Since 1971, the world has had a system of fiat money, in which government-issued money is not backed by anything of tangible value. Instead, dollars are now backed by the trust that other individuals will accept them in exchange.

Activity:

If you wish to cover some or all of the monetary history topics discussed above, this would be a suitable time to do so. Some of this material could be presented in lecture, perhaps utilizing the history of money timeline available at the Electric Money Web site http://www.pbs.org/opb/electricmoney/before_computers/timeline/page1.htm

The following might be suitable lead-ins for initiating a discussion on the nature of money:

- Suppose that the class were going to engage in monetary transactions and they had to choose some object in the classroom to use as money. Ask students to decide which object they should choose to use as money. The ensuing discussion should bring out the properties of a good money: durability, portability, ease of recognition, difficulty to counterfeit.
- Why was gold a good medium of exchange?
- Why would gold coins be better as money than just using lumps of gold?
- Suppose that banks can issue their own bank notes that the banks promise to convert into gold (or U.S. dollars, if you prefer a modern approach) on demand. What advantages do these bank notes have over carrying gold? Under what conditions would you feel comfortable holding these notes rather than gold (or dollars)? How different is a private bank note from a traveler's check? How different is it from a personal check drawn on a bank?

Assessment Recommendations:

Following this discussion, students should know the basic characteristics that make a particular commodity useful as money. Assessment may be based on creative participation in the discussion. Alternatively, essay questions similar to the following could be used on an exam or quiz:

- Explain the advantages and disadvantages each of the following classroom objects would have if used as money in a hypothetical classroom economy: chalk (not durable), desks (not divisible or portable), small stones approved by the teacher (how would you distinguish them from unapproved stones?)
- Why do American quarters and dimes have milling on their edges? Why was this more important when they were pure silver than it is now? Why do people accept dollars even though they are no longer officially backed by anything valuable like gold?

For More Information:

Many books have been written on the history of money. Most encyclopedias also have substantial entries.

- Chown, John F. *A History of Money from AD 800*. London: Routledge, 1994.
An accessible but quite detailed description of the evolution of money from coins to convertible paper to fiat money.
- Davies, Glyn. *A History of Money from Ancient Times to the Present Day*. Cardiff: University of Wales Press, 1994.
This book puts somewhat more emphasis on earlier times.
- Krooss, Herman E., ed. *Documentary History of Banking and Currency in the United States*. New York: Chelsea House, 1969–83.
An extremely detailed set of observations on the history of money (4 volumes).
- Williams, Jonathan, ed. *Money: A History*. New York: St. Martin's Press, 1997. A picture book released for a British Museum exhibition of coins and currency. Students are likely to enjoy browsing through and looking at the old coins and notes.

More advanced treatments of monetary history include:

- Friedman, Milton and Anna Schwartz. *A Monetary History of the United States, 1869-1960*. Princeton NJ: Princeton University Press, 1963.
- Hammond, Bray. *Banks and Politics in America from the Revolution to the Civil War*. Princeton, NJ: Princeton University Press, 1957.
- White, Lawrence H. *The Theory of Monetary Institutions*. Malden, Mass and Oxford: Blackwell Publishers, 1999.
A recent book that examines the theory of how money works.

The Federal Reserve System publishes extensive educational and research materials on money, most of which are available free of charge. As discussed above, the New York Federal Reserve Bank maintains an index at <http://app.ny.frb.org/cfpicnic/>. The Monetary History link lists some useful publications.

Lesson Plan #1c: Plastic Payment

Grade Level: 9–12

Time Required: 10–15 minutes, or more if desired

Overview:

This lesson is a guided discussion about how credit and debit cards work like money. The ideal way to integrate this discussion with the video would be at the second pause, which occurs after N minutes and M seconds. Alternatively, this discussion could occur after the students have watched the entire video.

The details of the credit-card industry are covered in a separate *Electric Money* tape, which has additional lesson plans and discussion ideas. In this lesson, we focus quite narrowly on the payment card as a step in the evolution of money.

Objectives:

To help students learn how credit/debit cards work.

Related National Standards:

NCEE Standard 11: Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.

Materials:

VCR to view the video segment before the discussion

Background Information for Teachers:

The tape segment describes the founding of the Diner’s Club Card in 1950, which is widely regarded as the beginning of the modern general-purpose payment card. Department stores, oil companies, and some other companies issued credit cards to their regular customers in the early twentieth century, but these card programs were run in-house by the retailers themselves and the cards could not be used at other establishments. What was new about Diner’s Club was that it could be used at a large number of unrelated retailers and that it was run as an independent enterprise.

• Payment Cards

The term payment card refers to a card that can be used as a medium of exchange. It includes the credit cards (Visa, MasterCard, and Discover), travel-and-entertainment cards (American Express, Diner’s Club, and Carte Blanche), and debit cards (bank ATM cards) that are in common use, along with the less common smart cards, which are discussed later on the tape.

When a customer makes a purchase with a credit card, he or she borrows money from the bank that issued the card and uses the proceeds to make the purchase. The terms of the loan—the grace period before interest is charged and the effective interest rate—are specified in the customer’s agreement with the bank. Travel-and-entertainment cards work much the same way, but the customer usually must pay off the entire balance each month and interest is rarely charged on current balances.

Debit cards are fundamentally different because the amount of the purchase is deducted directly from the customer’s bank account. No credit is issued as a result of a debit card transaction, which is largely equivalent to writing a check. (A common source of confusion occurs with debit cards that bear the MasterCard or Visa logo. When a customer uses such a card, she may be asked Debit or Credit? This refers to how the transaction is to be processed, not to where the money comes from. If the customer answers Debit, then she must enter her PIN number on a pad (a so-called point-of-sale or POS terminal) and the merchant transmits the transaction directly to her bank for processing; the customer’s account is often debited the same day. If she answers Credit, then she signs a charge slip just as in a credit-card transaction. The merchant sends the transaction to Visa or MasterCard for processing, which often takes longer to clear and usually costs the merchant a higher fee. In either case, though, the money comes directly from the customer’s checking account and no credit is issued.

• Economics of Payment Cards

Payment cards have replaced cash and checks for many transactions. Why? What do consumers, merchants, and card issuers gain from the use of payment cards rather than these other transactions media?

Consumers find payment cards attractive for several reasons. A small plastic card is less bulky than a checkbook. The potential risk of loss from theft is less than carrying a large amount of cash. Many consumers take advantage of the credit fea-

ture of credit cards to obtain a simple loan either until the bill comes (with no interest if paid in full) or for an extended period. Finally, some card issuers offer rewards such as airline frequent-flier miles to consumers for card use.

Although they pay a fee to the company that processes their credit-card transactions, merchants also gain from accepting payment cards. Most importantly, they would lose some customers if they did not accept payment cards. Another advantage of cards over checks is that payment is guaranteed by the issuing bank regardless of the customer's credit standing, as long as the merchant follows accepted practices for detecting fraudulent use (e.g., getting approval from the card company and checking the signature). In contrast, the merchant ends up losing money on an uncollectable check. Many merchants are more comfortable accepting payment cards than checks from out-of-town customers whose bank may be unfamiliar and where the costs of trying to follow up problems with the check could be very high.

For some transactions, especially those arranged over the telephone or the Internet, the physical nature of checks makes them inconvenient. To pay with a check, you must physically give the check to the merchant, whereas with a credit card only the account information embossed on the card needs to be transferred. Numbers can be sent immediately over the phone or Internet, but paper must travel much more slowly, so payment-card transactions can proceed much more quickly than if checks are used.

Of course, the backbone of the payment-card system is the computerized processing capability of the card networks, which include the merchant's bank, the bank issuing the card, the Visa/MasterCard/Discover system itself, and possibly other processing companies that are employed by the merchant to manage transactions. Each of these companies must earn enough money from a payment-card transaction to cover its costs. The details of how the proceeds of the transaction are distributed among these companies are complex, but there are two main sources of these proceeds. Merchants pay a fee for each payment-card transaction, usually proportional to the size of the transaction but often subject to a minimum fee that makes the percentage cost higher for small transactions. Cardholders pay mainly through the interest they incur on unpaid balances, but also through annual fees and special charges for such actions as late payments and going over one's credit limit.

Evidence suggests that the payment-card industry is highly competitive. The banks and other companies involved in the system do not earn extraordinarily high profits relative to other companies in the economy.

Activity:

This activity is a guided discussion on the role of plastic cards as payments media. The following questions might be useful to help get discussion started on the role of credit cards in the evolution of money:

- Some high school students may have credit cards of their own. Ask them to share information about them:
 - Are they general payment cards or store/gas cards?
 - Are the payment cards debit or credit cards?
 - Do they know whether there is an annual fee and how much interest is charged on unpaid balances?
 - How do they decide whether to use these cards rather than other media for a particular transaction? (For younger students, you may suggest having this conversation with parents and following up with a discussion the next day.)
- What happens when a customer buys a CD with a credit card? What companies and individuals are involved at each stage of the transaction? How does each one benefit from the transaction?
- Ask the students to suppose that they are going into business selling something that they make. What would be the advantages of accepting payment cards? What would be the disadvantages? Would it matter whether the transactions would be large (say, \$100 per purchase) or small (\$1.00)? Would it matter whether the customers made the purchases in person, by mail, over the phone, or through the Internet?

Assessment Recommendations:

Following this discussion, students should know the essential information about credit and debit cards. Assessment may be based on creative participation in the discussion. Alternatively, essay questions similar to the following could be used on an exam or quiz:

- Describe the difference between credit and debit cards.
- How do the banks that issue credit cards make a profit on them?
- What are the advantages and disadvantages to a merchant of accepting credit cards?

For More Information:

Evans, David and Richard Schmalensee. *Paying with Plastic: The Digital Revolution in Buying and Borrowing*. Cambridge, Mass: MIT Press, 2000.

This book is an excellent reference on the evolution and structure of the payment-card industry.

For a Federal Reserve staff study of how credit cards are used, see Thomas A. Durkin's Credit Cards: Use and Consumer Attitudes, Federal Reserve Bulletin, September 2000, p. 623–634.

Lesson Plan #1d: Smart Cards

Grade Level: 9–12

Time Required: 10–15 minutes, or more if desired

Overview:

This lesson is a guided discussion about smart cards, a new monetary innovation that is like a combination of a payment card and cash. Like a payment card, it is a single piece of plastic that the owner carries, although smart cards have a computer chip embedded in them that makes them more sophisticated than normal credit cards. Like cash, money on the smart card exists independent of any credit or checking accounts. If a smart card is lost, the money on it is lost as well, in contrast to a lost debit card, where the money still exists in a checking account and all that is lost is a means of access to the money.

The ideal way to integrate this discussion with the video would be at the third pause, which occurs after N minutes and M seconds. Alternatively, this discussion could occur after the students have watched the entire video.

Objectives:

This lesson allows students to discuss one of the emerging “gee-whiz” technologies that is discussed on the Electric Money video. It encourages them to think about issues such as why a new system of money like smart cards is difficult to initiate. It also invites them to think beyond current technologies to assess the characteristics a monetary card would need to have.

Related National Standards:

NCEE Standard 11: Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.

Materials:

VCR to view the video segment before the discussion

Background Information for Teachers:

• **How Smart Cards Are Different**

One of the newest innovations in payment technology is the smart card. As the tape segment emphasizes, the technological difference between a smart card and more traditional payment cards is that the smart card contains a computer chip that actually processes information, whereas the magnetic strip on a credit or debit card is simply an electronic encoding of the name, number, and expiration date that are embossed on the card.

What makes the smart card fundamentally different as a monetary instrument is actually token money as opposed to a means of recording a number referring to money in a bank account. The money stored on a smart card does not exist in any bank account. Carrying a smart card with a \$20 balance is just like carrying a \$20 bill. Unlike a credit or debit card, if you lose or destroy a smart card, the money stored on it is gone.

The smart card has the potential to chip away at one of the domains in which cash still dominates: small purchases. The merchant’s processing costs of checks and payment cards are high enough to make them undesirable for purchases of only a couple of dollars. Since the processing associated with smart cards happens on the card and in the merchant’s device that interfaces with the card, the only costs are maintaining the equipment and transferring the accumulated money out of the device periodically. Except perhaps for wear and tear on the machine, one thousand transactions of \$1 each cost no more than one transaction of \$1,000.

Smart cards can also serve non-monetary roles. For example, just as credit cards are sometimes used as identification, smart cards have the technological potential to store identification information, even including driver’s license, citizenship, and emergency contact information now kept very separate from one’s financial accounts. Smart cards can even serve as electronic keys to open doors to which the holder has authorization.

The earliest widespread adoption of smart cards in the United States has been the American Express Blue Card and the Smart Visa Card. These function in a way similar to standard American Express and Visa cards, but offer streamlined authentication procedures to the merchant. Information on use and credit limits is stored in the card’s chip and can be read by hardware the merchant installs. If the information on the chip says that the customer has sufficient credit to complete the transaction, then it can be approved without having to contact the card issuer’s computer system. This on-site approval system reduces traffic on the computer network and thus reduces costs.

• **Obstacles to Adoption**

Despite their technological potential, smart cards face the same adoption hurdles that all other monetary innovations have faced: people will only carry it and use it if it is widely accepted, but merchants will only accept it if many people want to use it. This chicken-and-egg problem arises in many economic situations: hardware and software, cars using alternative fuels and fueling stations supplying those fuels, video cassette players and movies on video cassette, etc.

The result of the chicken-and-egg problem is that adoption often begins very slowly, then accelerates rapidly once a critical mass of users on both sides is reached. Once the market becomes saturated, the rate of adoption then slows.

This process can be accelerated if someone is willing to risk short-term losses in order to move things along more quickly. With credit cards, banks flooded the market with credit cards and encouraged consumers to use them. This created a sufficient volume of users so that merchants quickly found it desirable to begin accepting cards. Neither merchants, nor consumers, nor banks have yet decided that the benefits of smart cards are so high that they are willing to move in a big way. Consequently, adoption of cash smart cards has been limited to small, coordinated markets like the York University campus shown in the video.

• **What Is a Payment Card After All?**

The video segment showing how a cellular phone can serve as a payment card (or as a smart card) raises once again the fundamental question about the nature of money and payment media. We have become used to the idea of a credit card as a piece of plastic. But functionally a credit card is simply a means of recording an account number with some means (signature, picture, thumbprint, or PIN number) to make the merchant more confident that the person presenting it is authorized to charge on that account.

Modern electronic devices such as cellular phones and personal digital assistants (PDAs) are easily capable of storing this information and of transmitting it to merchants. Thus, the host on the video segment was able to use a phone to purchase a souvenir and order and pay for a car wash. As such technology becomes more common, it is easy to envision a dramatic reduction in the role of the plastic card, even as credit/debit/smart card payment systems become more prevalent.

Activity:

This activity is a guided discussion on the role of plastic cards as payments media. The following questions might be useful to help facilitate discussion on the role of credit cards in the evolution of money.

In 2001, it is unlikely that any of the students in the class will have had experience with smart cards or cell-phone payment. Here are some ideas to get them started thinking and talking about the implications of these new technologies:

- What is the difference between a smart card and a traditional payment card? (Be sure to consider both technological differences and the account vs. token money distinction.)
- What advantages do smart cards have over debit cards? What disadvantages?
- Why is there little incentive right now for merchants to accept smart cards? (Few consumers have them. A new kind of card reader is required.) Why is there little incentive for consumers to carry smart cards? (Few merchants accept them.) How could we get over this barrier to the growth of smart cards? (One side would have to take the lead. Banks would either have to push consumers to use them or push merchants to accept them. They might do this by providing incentives in the form of discounts or credits based on smart-card transactions.)
- What happens when each of the following gets lost or stolen: cash, a check, a credit card, a smart card?
- If your school were to establish a smart-card system like the one at York University, what could students use it to pay for? In addition to serving as a student ID, what other roles could such a card serve (keys, etc.)?
- How worried would you be about the potential damage that a talented computer hacker could do in a world of smart cards? (Counterfeiting, unauthorized access to locked places, forgery of driver's licenses and passports, etc.)

Assessment Recommendations:

Following this discussion, students should understand what smart cards are and how they are similar to and different from other kinds of payment cards. Assessment may be based on creative participation in the discussion. Alternatively, essay

questions similar to the following could be used on an exam or quiz:

- In what ways are smart cards like debit cards? In what ways are they like cash?
- Why haven't smart cards taken off as a payment medium?

For More Information:

Because it is an emerging technology, the information on smart cards is relatively scarce and changes rapidly. The references below are current as of this writing, but may not be by the time you read this. You are encouraged to use Web-based indexes to current periodicals to find up-to-date materials.

For an interesting discussion of adoption issues, see:

Svigals, Jerome. Card Associations' 'Smart' Defense Has Whiff of Scam, *American Banker*, March 30, 2001, p. 17.

For a skeptical look from a technological point of view, see:

Robinson, Brian, "Is It Too Late for Smart Cards?" *Information Week*, March 19, 2001, p. 81.

Another good source of information is the March 2001 issue of the trade journal *Bank Systems and Technology*, which has several articles focusing on smart cards.

See also "Funny Money," the cover story in the March 2001 issue of *Management*.

Lesson Plan #1e: Paying on the Internet

Grade Level: 9–12

Time Required: 10–15 minutes, or more if desired

Overview:

The Internet raises new and interesting issues in payment technology; it has now started to develop innovative solutions to them as well. Because the two parties to a transaction are not physically in the same place, cash and checks are difficult to use over the Internet, requiring physical transportation before the transaction can proceed. Once security issues were resolved to the satisfaction of consumers, credit and debit cards became the standard means of payment for Internet transactions. However, traditional cards are costly for small transactions and cannot be used to pay individuals (rather than merchants). The video segment discusses PayPal, which is a new Internet payment system that has taken off quickly.

Objectives:

After viewing the final segment of the video and participating in this discussion, students should appreciate the need for a system like PayPal that will allow you to send money to anyone. They should also understand why it has been easier for PayPal to take off than smart cards. The recipient of a PayPal payment need not already be signed up on the system and, in fact, must then sign up in order to receive the payment.

Related National Standards:

NCEE Standard 11: Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.

Materials:

VCR to view the video segment before the discussion

Background Information for Teachers:

• **Making Payments on the Internet**

Commerce on the Internet has grown rapidly, though not as spectacularly as some had predicted. One of the problems that Internet traders have had to solve is how to pay. Because credit cards have been used for decades to pay for items ordered by telephone, they were a natural choice for Internet transactions.

However, two complications impeded the universal use of credit cards over the Internet. First, Internet communications before encryption were less secure than telephones. That made many people uncomfortable sending their credit-card numbers to merchants over the Internet. Second, as Internet auctions became popular, more and more sellers were individuals rather than business firms. Since individuals cannot accept credit-card payments, some alternative medium was required.

PayPal is one creative response to this problem. One of the most interesting aspects of PayPal is the viral nature of its diffusion. This puts it in direct contrast to the chicken-and-egg problem usually associated with new payments media.

The chicken-and-egg problem arises when the payer and payee must both subscribe to the system before a transaction can occur. With PayPal, a subscriber can send money to someone who has not yet subscribed. The payee then must become a subscriber in order to receive the money that has been sent. This creates a strong positive incentive for new users to sign up.

• **How PayPal Relates to Traditional Payments Media**

PayPal is, in principle, not much different than the system of electronic funds transfer that has been used for interbank transfers for several decades. The major difference is that PayPal is accessible to individuals and companies rather than just to banks and other financial institutions.

In the interbank networks, one bank can initiate a transfer of funds to another by sending an appropriate message on a computer terminal. The transfer is then eventually actuated by the Federal Reserve System transferring funds from the sending bank's account to the receiving bank's account. PayPal works the same way with the PayPal account system playing the role of the Federal Reserve.

So what is PayPal's status as a financial institution? In some ways it is like a bank: it maintains accounts that are a lot like checking accounts. People deposit money into these accounts (by authorizing PayPal to receive a transfer from a traditional bank) and then can make payments to others by sending PayPal transfers that work just like checks—only paperless and faster. Does this make PayPal a bank? No. Banks are defined to be institutions that *both* accept checking deposits *and*

make loans to customers. PayPal does not make loans, so it is not a bank.

How does PayPal make money to pay for its computers, staff, and other costs? Suppose that you transfer \$50 into your PayPal account to buy something on the Internet. When PayPal takes the \$50 out of your checking account, it has \$50 that it can use. PayPal keeps that \$50 (perhaps in *its* bank account) until it gets taken back out of the PayPal system and redeposited in a bank. If the person you pay immediately puts the money into her bank account, then PayPal doesn't get to use the money for long. But if that person spends the money using PayPal, and then the next person does the same, and so on, PayPal may keep the money in its system for weeks or months. All of the time that PayPal has the \$50 it can earn interest on it by purchasing Treasury bills or other liquid, short-term securities. (If PayPal were a bank, it could also use the money to make car loans, mortgage loans, etc., but so far it has chosen not to become a bank.) That interest is how PayPal pays its costs and, perhaps, earns a profit.

One point of potential controversy with institutions like PayPal is how they are—or rather are not—regulated. Banks are inspected regularly to make sure that they are using their depositors' money in ways that conform to existing regulations. For example, banks are not allowed to lend substantial amounts to the owners and managers of the bank itself, they are not allowed to lend too much to any one customer, and they are not allowed to own risky types of securities.

Institutions such as PayPal, because they are not banks, face no such regulations and no inspections. In principle, people will only put money into PayPal if they trust what PayPal is doing with it; thus PayPal has strong incentives to convince people that it is investing its money safely. If people lose confidence, then they will withdraw their money and PayPal will lose business. Thus, in principle, market forces impose a degree of regulation on institutions such as PayPal. However, some people are not confident that consumers will always be able to get the information they need in order to determine whether organizations like PayPal are trustworthy. These people argue that innovative financial nonbank institutions such as PayPal should be subject to regulation similar to that of banks.

Activity:

This activity is a guided discussion on the ways that we pay for things over the Internet. It would be helpful to augment the discussion with actual experience with PayPal or another Internet payment system, either by having students who have used it explain how and why, or by actually getting onto the Internet and making a payment.

It is possible that one or more students may have used PayPal to send or receive a payment. If a student has paid with PayPal, ask the student why he or she chose to pay by PayPal. If the student received a payment, ask what he or she did with the money received. In particular, did the student use the money within the PayPal system or did he or she put it into a bank account?

Another good activity to accompany this discussion would be to visit the PayPal Web site (www.paypal.com) and make a small payment to a class member or someone else. If you are willing, you could send \$1 to a randomly selected student in the class, then ask them to receive the email message informing them of the money and visit PayPal to receive it. This process will demonstrate the viral nature of PayPal, by which each payment to a new recipient creates a new user.

If you cover this material with general discussion rather than making an Internet transaction, you should contrast the viral transmission of PayPal with the chicken-egg problem involved with starting up a system of smart cards.

Assessment Recommendations:

Following this discussion, students should understand how PayPal works and why it provides a service for Internet commerce that is different—and, in its place, more useful—than credit or debit cards. Assessment may be based on creative participation in the discussion. Alternatively, essay questions similar to the following could be used on an exam or quiz:

- Describe a payment that would be easier to make using PayPal than using a credit or debit card.
- Why has PayPal had more success in signing up customers than Mondex and other smart cards?

For More Information:

The PayPal Web site (www.paypal.com) has a lot of information about this new payment medium, including references to articles talking about it. The more arcane pages of this site give information for merchants about accepting PayPal and a list of merchants that do accept it. One interesting exercise is to examine the costs to a merchant of accepting PayPal payments and to compare them to the costs of accepting credit and debit cards.

Lesson Plan #2: An Experiment in Barter Exchange

Grade Level: 6–12

Time Required: 45-90 minutes

Overview:

In this experiment, students experience the difficulties of trying to make exchanges without money. (This experiment is based on one described in Daniel Levy and Mark Bergen, “Simulating a Multiproduct Barter Exchange Economy,” *Economic Inquiry* 31(2), April 1993, 314–321.) Each of eight groups of students is endowed with a collection of commodities—food items are most commonly used. They may exchange with other groups in order to get a collection that they prefer, but only if they have something that the other groups want. Because there is no monetary commodity, each exchange must be worked out on a bilateral basis and the terms of trade must be negotiated individually for every transaction.

Objectives:

This experiment should teach students firsthand about the difficulties of non-monetary trade.

Related National Standards:

NCEE Standard 11: Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.

Materials:

You will need to provide a substantial collection of items for your groups to exchange. The precise nature of the items is up to you. The most common implementation of the experiment uses complementary food items. For example, you could use ice cream, spoons, various toppings, bowls, cones, napkins, etc. Each group will also need a worksheet on which to record their exchanges.

Activity:

Begin by dividing the students into about eight groups of one to five students each. Each group will receive an endowment of commodities. Levy and Bergen suggest the following endowments for a class of 25 students, but endless variations are possible:

Group A: 2 tuna-salad sandwiches, 2 ham sandwiches, 3 servings of lasagna, 3 plastic spoons

Group B: 2 chef’s salads, 3 plastic spoons

Group C: a bag of ice cubes, 24 servings of salad dressing, 6 8-oz. packages of cream cheese, 3 plastic spoons

Group D: 2 chef’s salads, 3 2-liter diet sodas, 3 2-liter regular sodas

Group E: 1 quart of ice cream, one pound of tofu, 3 plastic spoons

Group F: 25 plastic plates, 25 plastic knives, 3 plastic spoons, 25 plastic forks, bag of cookies

Group G: 8 bagels, 10 plastic cups, 3 plastic spoons

Group H: 50 napkins, 1 large pizza, 4 plastic spoons

The allocations should be designed to provide a variety of consumption possibilities to appeal to different tastes. They should also be designed so that most groups’ endowments are not self-sufficient and therefore encourage groups to trade. For example, Group D with the sodas cannot consume them without Group G’s plastic cups and, unless they like it warm, Group C’s ice. Some groups may have relatively valuable endowments while others seem fairly poor. (Group B will need forks and, ideally, salad dressing to consume their salads, but they have little to trade.)

If using food commodities, be sure to advise the students that anything that is not eaten at the end of the experiment must be returned to the instructor. (That prevents a group from simply taking the bagels home, for example.)

If space permits, the groups should be located in a circle or in clusters with plenty of room to move among groups. Once the instructor announces that trading may begin, students may move about the room attempting to trade some of their own goods for those of other groups. There is no restriction on trading except that credit is not allowed and no outside items may be included in the exchange (money or other items not listed in the group’s endowment). Each time they exchange, the group should record the amounts of the goods they sold and bought on a worksheet similar to the one below:

Names of Students

Endowment Goods:	Goods Consumed:	Goods Returned to Instructor:
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Transactions:

Type and Quantity of Good Sold	Type and Quantity of Good Bought
1.	
2.	
3.	
4.	
5.	
6.	

You may either set a time limit for trading before beginning (a good idea if time is short) or simply allow trading to proceed until groups are satisfied that they cannot improve the set of commodities they have. Once trading has concluded, the students can consume the goods their group owns.

While they are eating, or after eating if there is enough time, initiate a discussion about the experiment with the students. (The discussion can be deferred to a later class session, but some of the excitement of the experiment will have worn off by then.) You may start by eliciting their initial reactions to the process of exchange in the experiment.

A central point that can be made using this experiment is the importance of having a single commodity that can serve as money. The students will find that exchange in the experiment is very awkward, because the person/group that has the thing you want doesn't always want the thing that you have to exchange. Thus, transactions can only occur when there is a double coincidence of wants.

Ask the students whether they ever bought something with the intention of using it to exchange for something else rather than consuming it. If the answer is yes, then that commodity was being used as a primitive form of money. With this as an entry, it is easy to go on to talk about some important characteristics of money:

- It is easier if everyone uses the same money. Once one commodity becomes commonly used in trade, each user becomes more confident that it can be passed along to others and therefore becomes more willing to accept it.
- Prices are conveniently expressed in terms of money. An interesting exercise is to have students calculate the implied prices from various transactions. You can usually find lots of variation in prices across transactions that might disappear if everyone quoted prices in terms of money. For example, it would not be unusual for one piece of pizza to exchange for one tuna sandwich and also for ten cookies, but for the other tuna sandwich to exchange for twenty cookies.
- Money must be durable and divisible. As the experiment goes along, the ice and the ice cream begin to melt. This reduces their usefulness, which means that they would not be very good choices as money. With the limited number of cups

available, it becomes impossible to exchange as many glasses of soda as one could get out of the bottles. Thus, soda does not work very well in exchange due to indivisibility.

- One obvious choice for a monetary commodity in this experiment is the plastic spoons. However, since everyone has one, they are not scarce and therefore command no value in exchange.

Assessment Recommendations:

Quality of participation in the experiment and the follow-up discussion can form the basis for evaluation of students in this activity. If the follow-up discussion is held in the next class after the experiment, then it can be useful to ask students to write a brief report on the experiment. You might use questions similar to the following to get them thinking in the directions that will lead them toward the discussion points mentioned in the previous section:

- 1) How would the process of exchange have been different if play money had been used rather than barter?
 - Do you think that most groups would have ended up with a more desirable set of goods to consume if money had been used?
 - Why or why not?
- 2) Could any of the commodities in the experiment have served well as money?
 - Which ones?
 - What would have been the advantages and disadvantages of various commodities as money?

For More Information:

The original source for this experiment is:

Levy, Daniel and Mark Bergen, "Simulating a Multiproduct Barter Exchange Economy," *Economic Inquiry* 31(2), April 1993, 314–321.

Another classic paper that you and perhaps your students might enjoy is :

Radford, R. A., "The Economic Organization of a P.O.W. Camp," *Economica* 12, November 1945, 189–201.

This paper describes the author's experience in a World War II prisoner-of-war camp in which cigarettes came into use as the medium of exchange for other commodities.

Lesson Plan #3: How Do You Pay?

Grade Level: 6–12

Time Required: 15 minute initial discussion, then one week for students to keep track of their payments, then a 30–45 minute period to analyze the results

Overview:

This lesson asks students to track the media that they (or their family) use to pay for goods and services over a period of time. By comparing which expenditures are made by cash, check, and credit card, it should be possible to generalize about the kinds of transactions that are commonly made with each medium. The ensuing discussion can bring out the reasons why each monetary medium is better suited to certain kinds of transactions.

Objectives:

This lesson should make students aware of the alternative ways that people pay for different kinds of goods and services and when each is most likely to be useful.

Related National Standards:

NCEE Standard 11: Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.

Materials:

VCR to view the video segment.

Worksheets for each student to facilitate tracking expenditures.

Activity:

In this activity, each student is asked to track his or her own or their family's expenditures for a period of time—a few days or perhaps a week. For each expenditure, they are to record the (approximate) amount, the kind of merchant from whom the item was purchased, and the payment medium used (cash, check, credit card, debit card, etc.).

To get them started, give each student a worksheet with lines for recording the transactions. Something like the following table should suffice:

Item Purchased	Type of Merchant	Mail/Phone/In Person/Internet	Dollar Cost	Medium Used	Reasons/ Notes

Be sure to stress to the students that they should respect their family's privacy. They should not feel obligated to report transactions that might make them or other family members uncomfortable. If they would prefer, they can just give an indication of the kind of good purchased and a rough estimate of the cost. They should, however, try to include a variety of different kinds of transactions: large purchases, small purchases, bills paid, impulse purchases, regular shopping trips, etc.

Once students have returned their reports, there are several alternatives one might use to analyze them. Depending on the age and mathematical skills of the students, it may be useful for them to compile a frequency table of how many transactions in various cost ranges were performed with each of the monetary media. They might fill in the cells of the following table by examining the reports of the class members:

Dollar Cost	Cash	Check	Credit Card	Debit Card	Other
Less than \$10					
\$10– \$50					
\$50 – \$100					
Over \$100 Total					

If it is not possible or appropriate for the students to accumulate the table results on their own, it could be done in class as a group exercise or by the instructor. Once the results are obtained, the class can examine them for patterns. One would expect that the lower-value transactions would be most often made in cash and that medium- and high-value transactions would be made by checks and cards.

One can do the same kind of analysis to break down the medium of payment according to the kind of merchant and/or according to whether the payment was sent by mail (checks should dominate), by phone/Internet (cards), or in person (any medium).

Once the results have been tabulated, a follow-up discussion can focus on why particular transactions media are well suited to various kinds of transactions.

Assessment Recommendations:

Students can be assessed based on how successfully they tracked and reported their transactions, on how successful they were at compiling the required information, and/or on how much they contributed to class discussions of the results. Exam questions might include “How does the size of the transaction affect how one might choose to pay for it?” or “Which transactions media are most likely to be used for transactions performed by {mail, phone, etc.}?”

For More Information:

For some information on how most Americans make payments:

- Mester, Loretta J., “The Changing Nature of the Payment System: Should New Players Mean New Rules?” *Federal Reserve Bank of Philadelphia Business Review*, May 2000, pp. 3–26, available electronically at www.phil.frb.org/files/br/brma00lm.pdf. (Note: The character after the two zeros in the URL is a lower-case L, not a one.)

Other useful Federal Reserve publications can be found through Fed in Print at www.frbsf.org/publications/fedinprint/index.html.

Lesson Plan #4: How Can You Pay?

Grade Level: 6–12

Time Required: 15 minutes for initial discussion and setup, then a few days of independent research by groups of students, then 30–45 minutes for general discussion and analysis of results.

Overview:

In this lesson, students explore a variety of merchants to determine which merchants accept various payment media: cash (local and/or foreign), personal checks (local and out-of-town), traveler’s checks, credit cards, travel-and-entertainment cards, debit cards, smart cards, and other media. Students do research individually or in small groups, then pool their results to get an overview of a larger sample.

Objectives:

This lesson should allow students to see what kinds of payment media are used for different types of transactions.

Related National Standards:

NCEE Standard 11: Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.

Materials:

VCR to view the video segment before the activity
Worksheets for each individual or group to collect data

Activity:

If students are to work together on their research, assign them to groups of two or three. Decide how many merchants it is reasonable for each group to visit (five to ten seems like a reasonable range, depending on the size of the group). Decide on some categories of merchants: grocery stores, convenience stores, clothing or department stores, newspaper stands (if applicable in your location), restaurants, gas stations, ticket sellers, mail-order establishments, commercial Internet sites, or other kinds of merchants that are common nearby. When choosing categories, try to find a few in your area that do not take credit cards and some where cash or checks are discouraged or not accepted. (This will vary by region and depending on whether you are in a city or a small town.) Set a deadline (a few days should be enough time) and ask each group of students to visit one retail merchant of each kind and to determine which of the following kinds of payment media are accepted: cash, foreign currency (if that is common in your area, as in border or tourist communities), local-address personal checks, out-of-town checks, traveler’s checks, Visa/MasterCard/Discover, American Express, debit (ATM) cards from local banks, and other payment media such as smart cards or PayPal. (Note: You will want to tailor the selection of merchant categories and the selection of payment media to your locale.)

Prepare worksheets such as the one below for them to record their data:

Kind of store:

Name of store:

Location (address):

Payment Medium	Accepted	Not Accepted	Accepted with Limitations (describe)
Cash			
Local Personal Checks			
Out-of-Town Checks			
Traveler's Checks			
Visa/MasterCard/Discover			
American Express			
Local Bank ATM Cards			
Other Payment Media			

Encourage the students to visit stores in diverse locations. In other words, don't use all of the stores from the same shopping mall. Some of the answers may be obvious without asking any store personnel: a credit-card sticker on the door, a sign that says "No out-of-town checks" or "No checks", etc. For others, they may need to ask a store clerk politely for more information.

Inevitably, some students or groups will choose the same stores. To discourage this, suggest that they try to find out-of-the-way stores that their family uses but that other students might not use. Some students or groups may be unable to get information from one or more kinds of stores. Both duplication and omission will reduce the number of overall stores sampled, but unless it is extreme the results should still be useful.

Once the students have completed their research, draw a large table on the board or on an overhead transparency. Across the top, put the various kinds of payment media. Down the side, put the categories of merchants. Start with the first merchant category and ask each group, in turn, to report on what media are accepted. Put a mark in the appropriate box for each merchant accepting that medium (deal with limitations on a case-by-case basis). By the time each group has reported, you should have a good picture of what payment options people in your area have at that kind of store.

Once you have finished all the store categories, compare the results. Ask the students to try to determine why different kinds of merchants accept different payment media. Try to relate this back to some of the issues raised on the video and in the teacher background notes of Lessons 1a through 1e.

Assessment Recommendations:

Students can be assessed based on how well they completed the data-collection assignment.

- Did they visit all the assigned stores?
- Did they get the required information?
- Did they find particularly good stores or just the easiest ones?

Further assessment can occur through creative contributions to the discussion of the results and/or through exam questions asking students about why certain kinds of merchants accept different payment media.