ATM Banking

Unit: Basic Skills

Problem Area: Demonstrate Business Math Applications

Lesson: ATM Banking

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:

1. **Explain the definition and history of the automated teller machine.**
2. **Describe important parts of an ATM.**
3. **Explain examples of transactions completed at an ATM.**

Resources. The following resources may be useful in teaching this lesson:

"10 Things You Can Do at an ATM Besides Draw Cash," *howstuffworks*. Accessed Sept. 22, 2011. <http://money.howstuffworks.com/personal-finance/banking/10-things-you-can-do-at-atm.htm>.

"ATMs Abroad," *Independent Traveler*. Accessed Sept. 22, 2011. <http://www.independenttraveler.com/resources/article.cfm?AID=41&category=8>.

"Automated Teller Machine," *BusinessDictionary.com*. Accessed Sept. 22, 2011. <http://www.businessdictionary.com/definition/automated-teller-machine-ATM.html>.

"Automated Teller Machine," *Wikipedia*. Accessed Sept. 22, 2011. <http://en.wikipedia.org/wiki/Automated_teller_machine>.

Bowen, Jim. "How an ATM Works," *howstuffworks*. Accessed Sept. 22, 2011. <http://money.howstuffworks.com/personal-finance/banking/atm.htm>.

Murph, Darren. "Biometric ATMs coming to India," *engadget*. Accessed Sept. 22, 2011. <http://www.engadget.com/2007/01/21/biometric-atms-coming-to-rural-india>.

Equipment, Tools, Supplies, and Facilities

- ✓ Overhead or PowerPoint projector
- ✓ Visual(s) from accompanying master(s)
- ✓ Copies of sample test, lab sheet(s), and/or other items designed for duplication
- ✓ Materials listed on duplicated items
- ✓ Computers with printers and Internet access
- ✓ Classroom resource and reference materials

Key Terms.

The following terms are presented in this lesson (shown in bold italics):

- automated teller machine (ATM)
- biometrics
- card reader
- cash slot
- deposit slot
- display screen
- keypad
- personal identification number (PIN)
- receipt printer
- screen buttons

Interest Approach.

Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Ask students the following: "What would you do if you needed cash when the banks were closed?" Tell students that this lesson will examine important parts of an ATM and examples of transactions made there.

CONTENT SUMMARY AND TEACHING STRATEGIES

Objective 1: Explain the definition and history of the automated teller machine.

Anticipated Problem: What is the definition and history of the automated teller machine?

I. The purpose of the automated teller machine in banking has been to provide customers with a way to complete transactions without a live teller, outside of bank business hours, and in convenient public locations.

A. An ***automated teller machine (ATM)*** is a computerized machine that gives bank customers access to their accounts with a magnetically encoded plastic card and a code number. It allows the customers to perform several banking operations without the help of a teller (e.g., withdrawing cash, making deposits, paying bills, and obtaining bank statements).

B. ATM technology dates back to 1960. It has evolved during the past 50 years. Milestones include the following:

1. 1960—First National City Bank (now CitiBank) began using a Bankograph in lobbies. The concept of this machine was for customers to pay utility bills and receive a receipt without the help of a teller.
2. 1967—The first cash-dispensing machine installation took place in a London bank. It was manufactured by De La Rue Instruments. The machine converted paper vouchers bought from bank tellers in advance into cash for the customer.
3. 1969—Docutel installed the Docuteller machine at New York's Chemical Bank. It was the first use of magnetically encoded plastic. Docutel met initial resistance from bankers because the machine cost $8,000 more per year than using a human teller. Also, banks thought customers would be reluctant to use a machine to manage their cash.
4. 1971—Docutel released its "Total Teller," which was the first true full-function bank ATM.
5. 1973—In this year, approximately 2,000 ATMs (most from Docutel and Diebold) were operating in the United States.
6. 1974—Online ATMs were introduced. There was a connection with banks via telephone lines. The telecommunication between ATMs and banks is the current networking model used by ATMs.
7. 2011—It is estimated that there are 1.8 million ATMs throughout the world, including some machines that use biometric technology.

Teaching Strategy: *Use VM–A and VM–B to highlight terms and information during a class discussion.*

Objective 2: Describe important parts of an ATM.

Anticipated Problem: What are important parts of an ATM?

II. The façade of an ATM contains basic parts for completing a transaction: a card reader, a keypad, a display screen, screen buttons, a receipt printer, a cash slot, a deposit slot, and a speaker.

A. The ***card reader*** is the slot into which the customer's personal debit/ATM card is placed; it is a requirement for an ATM. The card has an electromagnetic stripe encoded with the customer's unique identifying information. The ***personal identification number (PIN)*** is the (usually four-digit) security code paired with the ATM plastic card. The customer must know and enter the PIN after inserting the debit/ATM card into the card reader slot; otherwise the ATM will not work.

B. The ***keypad*** is a 10-digit collection of numerical buttons (much like the numbers on a calculator) where the customer enters information, such as the personal identification number and the amount of money involved in the transaction.

C. The ***display screen*** is the area that shows customer information; it is a visual guide through the process of using the ATM.

D. ***Screen buttons*** are devices that provide choices for the customer to select on the display screen while completing the transaction. For example, the choice of which bank account to select will appear next to the screen buttons for the customer to push.

E. The ***receipt printer*** is a device that provides written documentation for the transaction at the end and may include information such as the customer's account balance.

F. The ***cash slot*** is the location where cash is dispersed to the customer if a withdrawal is made.

G. The ***deposit slot*** is the location where the customer feeds the envelope into the ATM when making a deposit.

H. A speaker is used when a person with a visual impairment uses the ATM. The keypad and screen buttons also have Braille for people with visual impairments.

I. ***Biometrics*** is technology for scanning a customer's fingerprint or eye to establish identity rather than using a pin number. ATM fraud occurs when cards and PINs are stolen and used. However, biometrics improves security.

J. The central processing unit (CPU) is the computer stored inside the ATM that is connected/networked using telephone and Internet wiring running beneath the ATM and ground. The CPU communicates with the customer's bank for account information during the transaction.

K. Vault and cash portals are secured within the ATM and store cash and deposits. The portals mechanically move out the money when a customer makes a withdrawal.

Teaching Strategy: *Use VM–C. Then watch video segments from http://money.howstuffworks.com/personal-finance/banking/atm.htm to have students view what is behind the façade of an ATM. Have students review the online article about biometrics used in ATMs at http://www.engadget.com/2007/01/21/biometric-atms-coming-to-rural-india. Then have students write a report about ATMs using information from Wikipedia at http://en.wikipedia.org/wiki/Automated_teller_machine.*

Objective 3: Explain examples of transactions completed at an ATM.

Anticipated Problem: What are examples of transactions completed at an ATM?

III. An ATM/debit card can be used at an ATM to complete the following typical transactions (that can be made internationally as well): a cash withdrawal from a checking or savings account, a deposit into a checking or a savings account, a balance inquiry, and a transfer. A debit card is part of the ATM system and can be used to make purchases at most businesses.

A. Typical transactions performed at an ATM include withdrawals, deposits, balance inquiries, and transfers. The card is inserted; the PIN is entered; and the customer selects the transaction type from a menu.

1. A withdrawal is taking cash out of an account using the ATM.
2. A deposit is placing a check or cash into an account using the ATM.
3. A balance inquiry is discovering how much money is available in a checking or savings account.
4. A transfer is moving money from one account to another.

B. A debit card purchase is considered part of the automated teller machine system, so a customer can use the bank account funds without having a teller present and after the bank has closed.

1. A business that accepts credit cards will also accept debit cards. Debit cards are connected directly to a customer’s checking account.
2. A customer can make a purchase using a debit card instead of using cash or a check.
3. The customer slides the debit card through the scanning machine at the place of business, and the banking system debits the amount of purchase from the customer’s account and creates documentation of the transaction with the bank.

C. The international use of ATMs enables a person to access cash when traveling abroad.
   1. An ATM card can be used internationally. However, some research must be done to ensure there are ATMs available at the destination and that the PIN is configured to work in those machines.
   2. The currency exchange rate is determined by the system.
   3. Typically, an international fee is charged for using ATMs abroad.

Teaching Strategy: *Use VM–D through VM–F. Have students read the information at the following websites: http://money.howstuffworks.com/personal-finance/banking/10-things-you-can-do-at-atm.htm and http://www.independenttraveler.com/resources/article.cfm?AID=41&category=8. Then have them create a "Tips for Using ATMs Abroad" brochure to give to people they know who might travel abroad.*

Review/Summary. Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Questions at the ends of chapters in the textbook may also be used in the Review/Summary.

Application. Use the included visual master(s) and lab sheet(s) to apply the information presented in the lesson.

Evaluation. Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activities. A sample written test is provided.

Answers to Sample Test:

Part One: Matching

1. f
2. i
3. b
4. e
5. c
6. g
7. h
8. a
9. d
10. j

Part Two: True/False

1. F

2. T
3. F
4. T
5. F
6. F

Part Three: Short Answer

Answers should include two of the following: withdrawals, deposits, balance inquiries, and transfers.

Sample Test

Name ______________________________

ATM Banking

Part One: Matching

Instructions: **Match the term with the correct definition.**

a. display screen
b. biometrics
c. automated teller machine (ATM)
d. card reader
e. personal identification number (PIN)
f. cash slot
g. deposit slot
h. receipt printer
i. screen buttons
j. keypad

_____1. The location where cash is dispersed to the customer if a withdrawal is made
_____2. Devices that provide choices for the customer to select on the display screen while completing the transaction
_____3. Technology for scanning a customer's fingerprint or eye to establish identity rather than using a pin number
_____4. The (usually four-digit) security code paired with the ATM plastic card
_____5. A computerized machine that gives bank customers access to their accounts with a magnetically encoded plastic card and a code number
_____6. The location where the customer feeds the envelope into the ATM when making a deposit
_____7. A device that provides written documentation for the transaction at the end and may include information such as the customer's account balance
_____8. The area that shows customer information
_____9. The slot into which the customer's personal debit/ATM card is placed; it is a requirement for an ATM
____10. A 10-digit collection of numerical buttons (much like the numbers on a calculator) where the customer enters information

Part Two: True/False

Instructions: **Write *T* for true or *F* for false.**

_____1. Only withdrawals are made at ATMs.

_____2. Debit cards used to make purchases at businesses draw the money out of the customer's account.

_____3. People with visual impairments cannot use ATMs.

_____4. Receipts are printed at ATMs as documentation of the transaction.

_____5. ATMs are not connected to the bank in any way.

_____6. ATMs have only been in use since 2000.

Part Three: Short Answer

Instructions: **Answer the following.**

List two types of transactions made at an ATM.

ATM

An *automated teller machine (ATM)* is a computerized machine that enables bank customers to access their accounts with a magnetically encoded plastic card and a code number. It allows the customers to perform several banking operations without the help of a teller, such as withdrawing cash, making deposits, paying bills, and obtaining bank statements.

ATM HISTORY

- 1960—First National City Bank (now CitiBank) began using a Bankograph in lobbies. The concept of this machine was for customers to pay utility bills and receive a receipt without the help of a teller.
- 1967—The first cash-dispensing machine installation occurred in a London bank. It was manufactured by De La Rue Instruments. The machine converted paper vouchers bought from bank tellers in advance into cash for the customers.
- 1969—Docutel installed the Docuteller machine at New York's Chemical Bank. It was the first use of magnetically encoded plastic. Docutel met initial resistance from bankers because the machine cost $8,000 more per year than using a human teller. Also, banks thought customers would be reluctant to use machine to manage their cash.

- 1971—Docutel released its “Total Teller,” which was the first true full-function bank ATM.
- 1973—Approximately 2,000 ATMs (most from Docutel and Diebold) were being operated in the United States.
- 1974—Online ATMs were introduced, as a connection with banks via telephone lines was established. The telecommunication between ATMs and banks is the current networking model used by ATMs.
- 2011—It is estimated that there are 1.8 million ATMs throughout the world, including some machines that use biometric technology.

ATM PARTS

- The **card reader** is the slot into which the customer's personal debit/ATM card is placed; it is a requirement for an ATM.
- The **personal identification number (PIN)** is the (usually four-digit) security code paired with the ATM plastic card.
- The **keypad** is a 10-digit collection of numerical buttons (much like the numbers on a calculator) where the customer enters information, such as the personal identification number and the amount of money involved in the transaction.
- The **display screen** is the area that shows customer information; it is a visual guide through the process of using the ATM.
- **Screen buttons** are devices that provide choices for the customer to select on the display screen while completing the transaction. For example, the choice of which bank account to select will appear next to the screen buttons for the customer to push.

- The **receipt printer** is a device that provides written documentation for the transaction at the end and may include information such as the customer's account balance.
- The **cash slot** is the location where cash is dispersed to the customer if a withdrawal is made.
- The **deposit slot** is the location where the customer feeds the envelope into the ATM when making a deposit.
- **Biometrics** is technology for scanning a customer's fingerprint or eye to establish identity rather than using a pin number.
- The central processing unit (CPU) is the computer stored inside the ATM that is connected/networked using telephone and Internet wiring running beneath the ATM and the ground. The CPU communicates with the customer's bank for account information during the transaction.
- Vault and cash portals are secured within the ATM and store cash and deposits. The portals mechanically move out the money when a customer makes a withdrawal.

WHAT TO DO AT AN ATM

Withdrawals, deposits, balance inquiries, and transfers are typical transactions performed at an ATM. The card is inserted; the PIN is entered; and the customer selects the transaction type from a menu.

1. A withdrawal is taking cash from an account using the ATM.
2. A deposit is placing a check or cash into an account using the ATM.
3. A balance inquiry is discovering how much money is available in a checking or savings accounts.
4. A transfer is moving money from one account to another.

DEBIT CARDS

Debit card purchases are considered part of the automated teller machine system, so customers can use their bank account funds without having a teller present and after the bank has closed.

1. A business that accepts credit cards will also accept debit cards.
   Debit cards are connected directly to the customer's checking account.

2. A customer can make a purchase using a debit card instead of using cash or a check.

3. The customer slides the debit card in the scanner at the place of business, and the banking system debits the amount of purchase from the customer's account. Then the machine creates documentation of the transaction with the bank.

INTERNATIONAL ATMS

The international use of ATMs helps people access cash when traveling abroad.

1. ATM cards can be used internationally. However, some research must be done to ensure there are ATMs available at the destination and that the PIN numbers are configured to work in those machines.
2. The currency exchange rate is determined by the system.
3. Typically, an international fee is charged for using ATMs abroad.

Name ______________________________

To Fee or Not to Fee?

Purpose

The purpose of this activity is to research the history and rationale of banks charging an ATM fee and to write a position paper on whether you agree with banks charging such fees.

Objectives

1. Research the history and rationale for banks charging ATM fees.
2. Write a one- to two-page paper summarizing your research and agreeing or disagreeing with the practice of banks charging fees for customers using ATMs.

Materials

- lab sheet
- computer with Internet access
- word processor (or paper and writing utensil)

Procedure

1. Complete an Internet search using key words such as "history of ATM fees" and "ATM fees."
2. Visit three websites (or more). Research the history of ATM fees to discover facts and the reasoning behind banks charging ATM fees.
3. Write a one- to two-page paper summarizing your research and agreeing or disagreeing with the practice of banks charging fees for customers using ATMs.

To Fee or Not to Fee?

You may want to share information as a class before having the students conduct individual research.

Some Possible Research Websites:

- http://www.stopatmfees.com/newpage3.htm
- http://en.wikipedia.org/wiki/ATM_usage_fees