
Building Your Future: Banking

*A Student and Teacher Resource
for Financial Literacy Education*

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The Actuarial Foundation

About This Book

Personal finance is part knowledge and part skill – and the *Building Your Future* book series gives students a foundation in both. It addresses knowledge by covering the essential principles of banking in Book One, financing in Book Two, investing in Book Three, and succeeding in Book Four. The series also addresses the mathematical skills that students need to live a financially healthy life. Students will be able to see the real-world consequences of mastering their finances, which helps them understand the relevance of good mathematical skills. We hope you enjoy this *Building Your Future* book series.

The catalyst for this book series was based on an original book authored and donated to The Actuarial Foundation by an actuary, James A. Tilley, FSA, who was interested in financial literacy education in schools. We thank Mr. Tilley for his original works that inspired this *Building Your Future* series.

About The Actuarial Foundation

The Actuarial Foundation is a 501(c)(3) nonprofit organization. The mission of The Actuarial Foundation is to enhance math education and financial literacy through the talents and resources of actuaries. Through *Advancing Student Achievement*, a program that seeks to improve and enhance student math education in classrooms across the country, we are proud to add *Building Your Future*, a financial literacy education curriculum for teachers and students, to our library of math resources. Please visit the Foundation's Web site at: www.actuarialfoundation.org for additional educational materials.

What is an Actuary? Actuaries are the leading professionals in finding ways to manage risk. It takes a combination of strong math and analytical skills, business knowledge and understanding of human behavior to design and manage programs that control risk. "Actuary" was included as one of the Best Jobs of 2012 as reported in the Wall Street Journal. To learn more about the profession, go to: www.BeAnActuary.org.

Building Your Future

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Some of the activities in this book reference specific Web pages. While active at the time of publication, it is possible that some of these Online Resource links may be renamed or removed by their hosts at some point in the future. Note that these links were provided simply as a convenience; a quick search should reveal some of the many other online resources that can be used to complete these activities. Facts and opinions contained are the sole responsibility of the organizations expressing them and should not be attributed to The Actuarial Foundation and/or its sponsor(s).

Building Your Future

Chapter 1: Savings Accounts



Did You Know....

That over the past 50 years, the personal savings rate in the US has dropped from 8.5% in 1957 to around 4% in 2012—and that it fluctuated significantly during the past 10 years?

Key Terms:

- Saving
- Investing
- Deposit
- Withdrawal
- Interest
- Interest rate
- Account balance
- Compounding of interest
- Future value
- Present value
- Discount factor
- Rule of 72

What You'll Learn

By saving even small amounts of money, you can build wealth slowly but steadily over time. Savings accounts are one means of putting money aside and earning interest on it. Money placed in these accounts is not intended for everyday expenses like purchasing movie tickets or buying new music online. Instead, their purpose is to provide the individual with a safe place to save money that will be used at a later date to make a major purchase such as a car, or to fund a large expense such as a college education or a house.

Savings Account Basics

The goal of **saving** is to provide funds for emergencies, short-term goals and eventually investments. People save first, and when they have saved sufficiently, then they may choose to take some of their savings and begin **investing** it. As you start to think about developing habits that will lead to good financial health, keep in mind the difference between saving and investing.

Deposits and Withdrawals

Have you ever tried to save up for something you really wanted, only to be unsuccessful because you were constantly taking small amounts of cash out of

saving

the process of setting money aside for a future date instead of spending it today

investing

the process of setting money aside to increase wealth over time and accumulate funds for long-term financial goals such as retirement

Career Link

Banks employ various types of financial and customer service occupations. Tellers make up the largest number of workers, and overall office and administrative support occupations make up the largest portion of jobs in the industry. Management, business, and financial occupations also employ a significant number of employees in the banking industry.

the money you were “saving” in your dresser drawer? While most of us have good intentions about saving money and understand that it takes some time and effort to save up for a major purchase, many of us don’t have the willpower to keep our hands off the cash when we have access to it. Here’s where a savings account can be a real life saver. Whether you’re saving for a car, your college education or a home, a savings account provides you with a secure place to store your cash while earning a little something extra.

When learning new ideas, it is often helpful to relate something new that you don’t yet understand to something old and familiar that you do understand using an analogy. Many people find it helpful to think of a savings account like a pail of water. The amount of water in the pail represents the money you have placed in the savings account. When you place the pail under the tap and turn it on, the amount of water in the pail increases. The water from the tap is a **deposit**.

deposit

money you put into your savings account

withdrawal

money taken out of your savings account

Let’s assume that your pail is fitted with a tap at the bottom of it. Each time you open the tap, the amount of water in the pail decreases. When you make a **withdrawal** from your savings account, you decrease its value. Just like keeping your pail full, the key to successful saving is making sure that you have more money going into the account than you do coming out of it.

In order for the amount of water in the pail to increase, water must flow into the pail faster than it flows out of the tap at the bottom of the pail. Similarly, to make your savings grow, the amount you deposit into the account should be greater than the amount you withdraw from the account. You also need to remember that with a savings account, there is a little extra inflow into the account coming from the interest earnings that are paid to you by the bank each month.

Interest Payments

Earlier we mentioned that by using a savings account, you can earn a little something extra. That “little something extra” is called **interest**. You are basically operating as a lender with the bank as your borrower. When you deposit money into a savings account, the bank has the use of your money until you choose to withdraw it. The bank can use your money to make loans to other people, and the bank pays you for giving up the use of your money while they hold it for you. The bank pays you interest each month on the amount of money in your savings account. The **interest rate** can vary from month to month. When you get your statement from the bank, it will list your **account balance** at the beginning and end of the statement period. Using the analogy of the pail of water, even if no additional water enters through the tap (no deposits are made) or leaves through the bottom tap (no withdrawals are made), there will be more water in the pail (the account balance will change) because of the interest payment made to you by the bank.

interest

money paid to you by the bank for being able to use your money

interest rate

percentage you are paid for your money

account balance

total amount of money that is in the account at a given point in time

Let's build a spreadsheet to see how your savings account can grow as time passes. You open a savings account with \$1,000. You do not make any additional deposits or withdrawals. The money stays in the account for a year. At the end of that time, your account balance will be more than \$1,000. This is because the bank has been paying you interest at a rate of 3% per year for the use of the money. Interest can be paid monthly (0.25% per month) or quarterly (0.75% four times per year) and is credited to your account just like a regular deposit. In this case, the interest is paid monthly. As long as there is money in the account, the bank will continue to pay you interest on that money.

The actual interest rate that banks credit to savings accounts can fluctuate significantly. In the late 1970s, it was as high as 16% per year; in 2012, we saw historically low rates of less than 1% per year.

Try It!

Examples and Practice

Create a spreadsheet that contains the following columns and data. Note that because the interest rate is a yearly one, it must be divided into equal monthly payments. To do this, assume that the account is earning .25% each month (.25% x 12 months = 3% per year).

	A	B	C	D	E
1	Month	Interest Rate	Beginning Balance	Interest Payment	Ending Balance
2	1	0.25%	\$1,000.00	\$2.50	\$1,002.50

As you construct the spreadsheet, think about the following:

- **Interest Payment = Interest Rate x Beginning Account Balance**
- **Ending Account Balance = Beginning Account Balance + Interest Payment**
- **Beginning Account Balance = Ending Account Balance from the previous month**
- *How you would express each of the statements above as a formula for the spreadsheet?*

Using the formulas, construct the remainder of the spreadsheet.

- *How did the beginning balance grow over the course of the year?*

Compounding of Interest

Why do interest payments increase over time? The bank credits interest to your account each month, and that interest is earned on the entire account balance, not just the original deposit. As the account balance grows over time (like you saw in the spreadsheet activity), your interest earnings grow as well thanks to the **compounding of interest**. When studying compound interest, it is

compounding of interest

when money is earned on the total amount in the account including the initial deposit and interest that has already been credited to the account

important to remember that the interval at which the interest is compounded affects the total amount earned. If interest is compounded annually, then the amount earned will be less than if it was compounded monthly at the same rate. If the interest is compounded daily at that rate, the amount earned would be even greater.

Using the spreadsheet you created, you will see that the balance at the end of the year is \$1,030.42. *How can this be when the annual interest rate is 3%? Where did the extra 42 cents come from?* The answer is compounding of interest. Remember, when the bank pays you interest each month, it is based on the total amount in your account, which includes interest you earned in previous months.

Try It!

Examples and Practice

To see the compounding of interest in greater detail, extend the spreadsheet you initially created to reflect three years of activity and answer the following questions:

- *How much interest was earned after 1 year? 2 years? 3 years?*
- *How do these amounts illustrate the concept of the compounding of interest? Explain.*

Future Value, Present Value, and Discount Factor

When learning about finance and investments, there are three fundamental concepts you must understand in order to make sound financial decisions and have strong financial health. These concepts are future value, present value and discount factor.

Future value is the easiest of the three fundamental concepts. When thinking about future value, apply what you know about interest payments to illustrate the principle involved.

Go back to the spreadsheet showing what happens to your initial \$1,000 savings account investment. The calculations show that the one-year future value is \$1,030.42, the two-year future value is \$1,061.76, and the three-year future value is \$1,094.05.

Try It!

Examples and Practice

Extend your spreadsheet and determine the four-year and five-year future value of your savings account.

The examples above show that a given amount of money will be worth more in the future because of interest earnings. One thousand dollars today is not worth \$1,000 in one year. It is worth \$1,030.42 if the interest rate is .25% per month. The concept of **present value** is the opposite of the concept of future value. From the spreadsheet, you can see that the value of \$1,030.42 occurring in one year has a value today of \$1,000. One says that the present value (the

future value
*how much a set amount
of money will be worth
in the future*

present value
*the value of money right
now, today*

value today) of \$1,030.42 in one year is \$1,000 at an interest rate of .25% per month. If you refer back to your savings account spreadsheet, we can see that even though you intend to keep the \$1,000 in your savings account for five years, the value of that money right now, today, is still \$1,000.

The **discount factor** is closely related to present value. How would you answer the question *What is the present value of \$500 in one year at an interest rate of .25% per month?* This may look like a difficult problem, but the answer is embedded in the spreadsheet you already created. Let's see how by analyzing the concept of present value a bit more.

From the spreadsheet, you know that the present value of \$1,030.42 one year in the future is \$1,000 with an interest rate of .25% per month. Therefore, the present value of \$515.21, which is one half of \$1,030.42, one year in the future must be one half of \$1,000, that is \$500.00. Similarly, a present value of

discount factor
*the amount that \$1
at some point in the future
is worth today*



\$2,060.84, which is twice \$1,030.42, one year in the future must be twice \$1,000, which is \$2,000.

Because the relationship between present and future values is unchanged by multiplication or division, there is a simple way to determine the present value of \$1 one year in the future. Divide \$1,000 by \$1,030.42 and get 0.9705, accurate to four decimal places. That means that 97.05 cents today is worth \$1 in the future at an interest rate of .25% per month. The number .9705 is referred to as the discount factor for money one year in the future. By learning to compute the discount factor, you can tell how much \$1 at some point in the future is worth today.

Try It!

Examples and Practice

Using what you have learned, answer the following question:

- *What is the present value of \$500 in one year at .25% interest per month?*

Hint: You can use the spreadsheet you have already created and divide since present and future value are unchanged by multiplication or division.

Practice calculating the discount factor on the savings account spreadsheet you have already created. To do this, add a column to the right titled "Discount Factor." In the first cell of the column, type the formula for calculating the discount factor. In our example, it would be $\$500/E2$ (Ending Balance). Copy and paste this formula to the bottom of the column. Now answer the following questions:

- *When you look at your spreadsheet, what do you notice about the number in the Discount Factor column?*
- *Explain why the number in the Discount Factor column becomes smaller as the amount of time becomes larger.*

The Rule of 72

When people save money, the goal is to increase the worth of that savings. Using the **Rule of 72**, you can easily make decisions about the most effective way to save your money. Here's how the Rule of 72 works. Let's go back to our original savings account of \$1,000. We saved this money at an annual rate of 3% interest. Using the Rule of 72, you simply divide 72 by the interest rate (in this case, 3%) to determine the total number of years it will take to double your money. If you do the math, at a 3% annual interest rate it takes 24 years to double the initial \$1,000 savings.

There are a couple of caveats when using the Rule of 72. First, remember that it is an estimate, not an exact calculation. For example, if you are earning 8% interest on your money, the Rule of 72 indicates that it will take nine years to double your money. When you calculate the exact amount of time it would take, the figure is actually 9.01 years—quite close to the estimated amount of time, but not exact. Next, note that the Rule of 72 works best when estimating for interest compounded annually at rates below 20%. For interest rates higher than 20%, its accuracy diminishes.

rule of 72

a formula designed to help people estimate how long it will take to double their money at a certain expected interest rate



Try It!

Examples and Practice

Practice estimating how long it will take to double your \$1,000 savings using various interest rates. If the account paid each rate listed below, how long would it take to double according to the Rule of 72?

- 2%
- 4%
- 8%
- *What conclusions can you draw about how interest rates affect the value of money over time?*

Savings in the Real World

Up to this point, we've worked with an example that shows that you've made only one deposit and no withdrawals from your savings account. While savings accounts are designed to be a place to put money for a fairly long period of time before it is withdrawn, these types of accounts typically have some deposits and withdrawals over the course of a year. It is important to know that most banks limit the number of withdrawals that can be made from a savings account without incurring bank charges.

Try It!

Examples and Practice

Let's create a more realistic example of savings account activity and find out how that changes the end result for the account. You will need to modify your savings account spreadsheet and add two columns, one to record deposits, the other to record withdrawals. The spreadsheet should now look like **Spreadsheet 1** on the next page:

	A	B	C	D	E	F	G
1	Month	Interest Rate	Withdrawals	Beginning Balance	Interest Payment	Deposits	Ending Balance
2	1	0.25%	\$0.00	\$1,000.00	\$2.50	\$0.00	\$1,002.50

In order for the spreadsheet to calculate everything correctly, you will need to change some of the formulas.

- **Interest Payment = Interest Rate x Beginning Account Balance**
- **Ending Account Balance = Beginning Account Balance + Interest Payment + Deposits**
- **Beginning Account Balance = Ending Account Balance from the previous month – Withdrawals from the current month**

Use the updated spreadsheet to calculate the following scenario:

- You start your account with a beginning balance of \$1,000
- You deposit \$320, half of the money you earn from your part-time job, monthly
- In month 4 you withdraw \$45 to purchase a video game
- In month 7 you deposit \$50 you received for your birthday
- In month 10 you withdraw \$200 to pay a registration fee for an upcoming activity

Based on the spreadsheet, answer each question below.

- *How much money is in your savings account at the end of 12 months?*
- *How much interest did you earn on your money over the course of the year (in \$)?*
- *Why is using a savings account better than using your dresser drawer for saving money?*

Independent Practice

You would like to purchase a reliable used car. You've done some research and learned that it will cost you approximately \$5,000 to buy the car. You earn \$160 a week from your part-time job. You've already managed to save \$250 on your own, but you've been tempted to spend it. You've found a bank that will pay you 3.25% interest annually on your savings account, with interest payments made monthly. How long will it take you to save up for the car if you put at least half of your earnings into the savings account each month?

Using what you have learned about savings accounts, create a spreadsheet that will illustrate how long it will take you to save up for the car you want to purchase.

Building Your Future

Chapter 2: Checking Accounts



Did You Know....

In 2012, 87% of the U.S. population had a mobile phone and 21% of them had accessed mobile banking in that year. Additionally, 68% of consumers with regular internet access had used online banking in that year, with more widespread use anticipated in the years ahead.

Key Terms:

- Check
- Deposit/credit
- Debit
- Balance/reconcile
- Statement balance
- Debit card
- PIN
- EFT (electronic funds transfer)
- Online and smartphone banking
- Automated Teller Machines (ATMs)
- Overdrawn
- Overdraft penalty
- Identity theft
- Overdraft protection
- Minimum account balance
- Interest bearing account

What You'll Learn

Learning to maintain a checking account is a necessary skill to master before living independently. Today's checking accounts offer a wide range of banking options, and the proper use of a checking account makes paying bills and tracking personal spending habits simple and convenient.

Checking Account Basics

Today's checking accounts are very different from those your parents were introduced to when they were your age. Designed to make it easy for people to pay their bills or purchase things without having to go to the bank and withdraw cash, traditional checking accounts grant check-writing privileges. The privileges allow the account holder to make payments with **checks**, which are used by people to pay for items such as utilities, rent, mortgage payments, food and a variety of other expenses. Sometimes, the bank deducts the cost of printing each box of checks from the customer's account.

check
handwritten or computer-generated order specifying the amount of money to be paid and the name of the person or company who should receive the funds

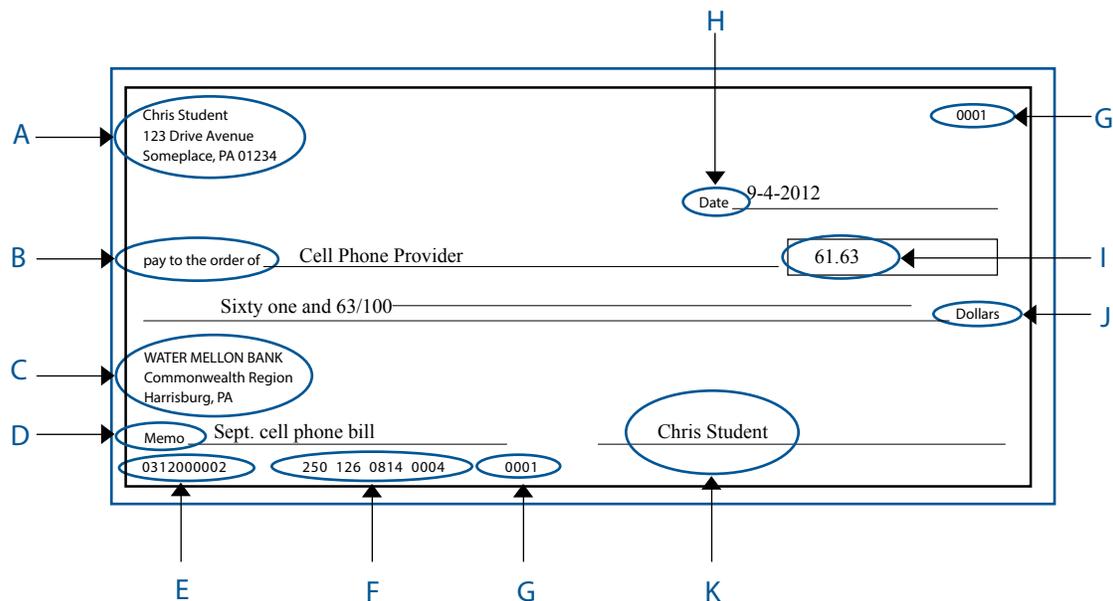
Career Link

There can be a time delay between when a check is written and when the actual financial transaction is complete. Just as it's prudent for consumers to make sure that there's enough money in their account before writing a check, actuaries who focus on reserving do the same sort of thing for a company—ensuring that the company has enough money in their account (called a reserve) to cover the things they've promised to pay in the future.

With the growth of the Internet and expanded use of home computers and smartphones, consumers now expect a checking account to offer many more services than were traditionally associated with checking accounts in the past.

Most checking accounts now offer privileges including debit cards, electronic funds transfer and online banking, to name a few. Unlike a savings account, the money in a checking account is meant to be used. These accounts provide holders with a place to keep their money for a short time before it is spent. For this reason, banks typically pay very little or no interest on checking account balances. In fact, banks are considering options for charging customers periodic or per-transaction fees for maintaining a checking account.

What's Included on a Check



- A = Name and address of the account holder
- B = Name of the business or person receiving the payment
- C = Name of the bank where the account holder has the checking account
- D = Allows the account holder to record what the payment is for
- E = Routing number indicating the bank the check is drawn on
- F = Checking account number
- G = Check number
- H = Date that the check is being written
- I = Dollar amount being paid written as a number
- J = Dollar amount being paid written out in words
- K = Signature line where the account holder signs the check

When you first open a checking account, the bank will provide you with a checkbook and blank checks that you can use to pay bills and make purchases. The previous page shows a sample check with a short explanation of the information that appears on a check.

Let's assume that you are paying your cell phone bill. The amount you owe the cell phone provider is \$61.63 for your September bill. The sample check has been made out to "Cell Phone Provider." In the appropriate places, you must write out the amount of the check both in words and in numbers (as shown on the sample check). You must indicate the date that you write the check and you must sign the check with your name. In this example, "Chris Student" signed the check on September 4, 2012. There is typically a line at the bottom left of the check so you can write a note about what the check was for. Our sample check's Memo line indicates this is for the "Sept. cell phone bill." If you completed the check correctly, it would look like the sample.

Checking Account Balances

When tracking the balance in your checking account, you can use a spreadsheet similar to the one used with a savings account. Since there will be very little or no interest contributed to the account, you can eliminate that column on the spreadsheet. What is most important is to keep track of **deposits** or **credits** and **debits** from your account. As you would expect, the balance in a checking account gets larger when a deposit/credit is made and smaller when withdrawals/debits, in this case, checks, are written against the account.

deposit/credit
*money you put
into your account*

debit
*withdrawal from
your account*



The bank will provide you with a check register to keep with your checks. In the check register you can record the date and amount of deposits as well as the date, check number, payee (the person to whom the check is written) and amount of each check as it is written.

Check Register					
Check Number	Date	Transaction Description	Check/Debit Amount	Deposit/Credit Amount	Balance
		Beginning Balance			\$227.89
100	9/1/12	Corner Market	\$22.54		\$205.35
101	9/3/12	Corner Gas Station	\$36.50		\$168.85
Dep	9/4/12	Paycheck from work		\$422.60	\$591.45
102	9/4/12	Cable Provider	\$49.81		\$541.64

balance/reconcile

compare the amount of money in an account, equal to the net of credits and debits at that point in time for that account

At the end of each month, you should **balance** or **reconcile** your checkbook. To find your account balance, the following formula can be used:

$$\begin{aligned} \text{Account balance} = & \text{Start of the month account balance} \\ & + \text{Total amount of deposits made during the month} \\ & - \text{Total amount of checks written during the month} \end{aligned}$$

statement balance

how much money you have in your checking account as of the statement date

At the end of each month, the bank will send you a statement which includes a **statement balance**. In addition to the balance, the statement will list all of the debits and credits for the account made before the statement date. It is important to remember that the statement balance may be different from the actual balance in the account because additional transactions have been made and because not all debits have cleared. Use your checkbook register and compare it to the statement to verify the accuracy of the statement and ensure that your account has sufficient funds to cover outstanding debits.

Try It!

Examples and Practice

Imagine you have a part-time job and you earn a paycheck every two weeks. You must use that money to pay some of your own expenses including school lunches and your monthly cell phone bill. In addition, you use the money in this account for day-to-day expenses such as leisure activities and purchasing items you want such as clothing, music, video games, etc. Suppose that your end of the month account balance in August was \$143.68. This will be your start of the month balance for September. During September you make two deposits into the account when you receive your paychecks. The first is for \$105.24 and the second for \$108.78. You write nine checks totaling \$289.44.

Using the formula listed above, what will your account balance be at the end of September?

Electronic, Online, and Smartphone Banking

Over the past several years, electronic and online banking features offered by most checking accounts have gained popularity and become part of what consumers expect when they open a checking account. Rather than writing a paper check, many people prefer to utilize a **debit card** to pay for day-to-day transactions. When using a debit card, you will often be asked to enter your **Personal Identification Number**, or **PIN**, to verify your identity.

The main differences between traditional checks and debit cards are:

- Debits are easily completed by swiping a card that looks like a credit card rather than writing a check.
- Debit card funds are accessed immediately by the merchant and the funds are automatically deducted from the cardholder's account, whereas checks must clear the bank before the merchant receives the funds.
- Debit cards can be used at Automated Teller Machines (ATMs) to get cash immediately and directly from one's checking and/or savings account 24 hours a day, seven days a week.

Many people prefer to use debit cards for day-to-day purchases because they are the same as cash or checks, but provide much more convenience than carrying cash or writing a check. In addition, they can be used at a wide range of businesses including gas stations, restaurants, grocery stores, movie theaters and virtually any other location that accepts credit cards.

In addition to the use of debit cards, another type of transaction is also gaining popularity. This is the **Electronic Funds Transfer**, also known as an **EFT**. Examples of ways that EFTs are used on an ongoing basis include:

- Automatic transfer of your paycheck from your employer's account to your checking account, also known as direct deposit
- Automatic payment of an ongoing monthly bill such as a gym's membership fee or a monthly utility bill

Rather than waiting for monthly bank statements and bills to arrive, many people have turned to **online banking** or using their smartphones. Online banking can be used to do things such as looking up account balances, transferring funds between accounts and paying bills. Online banking is fast and available 24 hours a day, seven days a week, regardless of the bank's hours of operation. There are many advantages to online banking, including the fact that no checks need to be written by hand, transactions are automatic and the service is usually free to account holders.

Mobile phone users are able to utilize applications (or "apps") for their banking needs. Most major banks now allow consumers to check their account balance,

debit card

a card that allows the user to withdraw money from a bank account to obtain cash or make a purchase

personal identification number/PIN

four-digit code connected to the debit card; verifies your identity

electronic funds transfer/EFT

the movement of funds using computer systems, telephones or electronic terminals, or smartphones

online and smartphone banking

allows account holders to access their account information, view transaction history and perform banking transactions via the Internet or their mobile phone

transfer funds between accounts, pay bills, deposit checks using the phone's camera, locate the nearest banking retail location and receive text message alerts - all on their mobile phones.

Try It!

Examples and Practice

Let's return to our previous example. You had a beginning balance of \$143.68. You made two deposits in the amounts of \$105.24 and \$108.78. You wrote nine checks totaling \$289.44. You completely forgot to record a debit from a weekend trip to the mall, and you didn't realize this until you decided to check your account balance online one evening.

According to the bank records, you went to the movies and spent \$22.94 on admission and snacks. In the meantime, you've already sent a check for \$62.97 to the cell phone company to pay your monthly bill.

- *What is the current balance in your bank account?*
- *What do you think will happen when the cell phone company tries to cash your check?*
- *What will happen as a result of your failure to record the debit? Try to list three possibilities.*

Automated Teller Machines (ATMs)
a machine that allows you to perform basic banking functions without the help of a teller

Automatic Teller Machines (ATMs)

Before **Automated Teller Machines (ATMs)** were introduced, the only way you could withdraw money, make a deposit or check your account balances was to enter a branch and talk face to face with a teller. Today, there are close to two million machines worldwide that allow you to access your accounts 24 hours a day, sometimes without even having to leave your car.

Most banks offer ATM cards to their checking account customers; these are usually, but not always, debit cards. These cards (along with a personal identification number, or PIN) allow you to access your accounts through almost any ATM, whether it is owned by your bank or not. Some banks may require monthly or annual fees to use these cards; check with your bank to see if your card has any recurring or per-transaction fees attached.

If you use an ATM owned by another bank, you may have limited access to your account, perhaps only being able to withdraw money and check your balances. You will likely be charged a fee (typically between \$1 and \$3) for the privilege of using that other company's machine. Remember to record this fee, along with your withdrawal amount, in your checking register!

If you use an ATM owned by your bank, you will probably have greater access to your accounts, including having the ability to make deposits and transfer funds between accounts; you will also likely not have to pay any fees for using the machine.

overdrawn
*having a negative balance
in your account*

overdraft penalty
*a fee to cover the cost of
processing your bad check*

identity theft
*stealing someone's personal,
identifying information and
using it to make purchases
or to get other benefits*

Overdrafts and Overdraft Protection

It is important to remember to record transactions in your checkbook register when using a debit card to pay a merchant, when you withdraw cash from an ATM, and when you use an EFT to pay a recurring expense. Failure to record such transactions, particularly debits, could result in your being **overdrawn**. When this happens, the bank will bounce checks and deny electronic debits. When a check bounces, it is returned to the merchant unpaid because you do not have sufficient funds in the account. This can not only be embarrassing, but it can also result in paying late fees to the merchant and an **overdraft penalty** to the bank. While every bank is different, banks commonly charge \$25 or more per check for overdraft charges.

Using the example above, your account balance is currently \$45.32, and the cell phone company will be receiving a check for \$62.97, which could overdraw the account to -\$17.65. You won't get paid for another week, so this

Protecting Yourself from Identity Theft

According to the Federal Trade Commission, as many as nine million Americans have their identities stolen each year. If someone finds a way to steal your private information, such as your social security number or credit card information, they may be able to make purchases, get a phone, rent an apartment, or order and use new credit cards – and it may be months before you find out. While some identity theft victims have been able to quickly resolve problems, many others take months to repair the damage done to their good name and to their credit rating.

Thieves can get your information in a number of ways, such as going through your trash to find old statements and receipts, posting online scams, using computer viruses, or simply stealing your wallet or purse. You should guard your personal and financial information carefully, taking common-sense steps such as:

- Monitor your financial accounts closely, checking monthly and/or daily online statements and balances, and regularly checking your credit report
- When paying online, make sure the company you're buying from has a secure payment system

- Shred old financial documents rather than throwing them away
- Maintain computer security with firewalls and virus protection software
- Don't provide your personal information to people you don't know, or to companies (particularly online) if they don't seem legitimate

If you think that someone has stolen your personal information, take action immediately. If you see unauthorized charges on one of your credit cards or bank statements, contact your credit card provider or bank immediately to dispute such charges and alert them to the problem. Also contact one of the three credit reporting agencies to place a fraud alert on your credit report; this will prevent an identity thief from opening any new accounts in your name. (And note that if you notify one agency, they're required to inform the other two.) You may also want to file an Identity Theft Report with the police, which will give you certain legal rights such as helping you prevent credit reporting agencies from listing fraudulent accounts on your report, and ensuring that collection agencies do not pursue you for charges you did not make.

overdraft protection

arrangement with the bank to cover checks so they will not bounce

is a stressful situation. Not only will you be charged a late fee on your cell phone bill and risk losing your service, but you will also be charged an overdraft penalty of \$25 by the bank. This is turning out to be a very costly mistake. For this reason, many banks offer **overdraft protection**. Types of overdraft protection vary but can include:

- Automatic transferring money from another account at the same bank (assuming you have one) to cover the amount you are deficient in your checking account to prevent you from overdrawing
- Allowing you to overdraft your account up to a specified limit before assessing any penalties and bouncing your checks
- Lending you the amount of money by which you have overdrawn your account and charging you a high rate of interest on this loan (you must pay interest until you repay the loan by depositing enough money into the checking account to correct the deficiency)

In all of these cases, the bank may charge you a fee for these services.

minimum account balance

the amount of money you must keep in the account to avoid service charges, qualify for special service or earn interest on the checking account

Choosing a Checking Account

When selecting a checking account, it is important to read the fine print and pay attention to any fees and requirements associated with the account. Some accounts require you to keep a **minimum account balance** of as much as \$1,000. If you fall below this amount at any time during the month, you may be charged a service fee and, if you have an **interest bearing account**, you will not earn the interest you were expecting. These accounts typically have a high minimum account balance and pay a low rate of interest.

interest bearing account

an account that earns interest

In addition to being on the lookout for hidden fees and high minimum balances, it is beneficial to find out what kinds of perks you can get at various banks. Some offer free checks and online bill pay with easy-to-use mobile phone apps, email statements and overdraft protection. Others offer a higher rate of interest for using debit cards a certain number of times each month. Finally, others offer special starter accounts for students. When selecting a bank, be sure you choose an account that meets your needs in terms of services that match your spending habits.

Independent Practice

Are you ready to apply your understanding of checking accounts? You will need to receive the **Independent Practice Handout** from your teacher; complete it to put your new knowledge to the test.

Building Your Future

Chapter 3: Credit Cards



Did You Know....

Approximately 183 million Americans are using credit cards, and the average credit card debt was around \$7,100 per household in 2012.

Key Terms:

- Credit
- Credit card
- Credit limit
- Charge
- Interest rate
- Payment due date
- Outstanding balance
- Finance charge
- Grace period
- Late fee
- Annual fee
- Cash advance
- Cash advance limit
- New purchases/charges
- Previous payments
- Daily finance charge
- Annual percentage rate
- Minimum payment
- Average daily balance

What You'll Learn

Credit can be a wonderful thing. It allows us to purchase homes, cars and other items we need for daily life quickly and easily. Credit can also turn into a nightmare for those who either do not use it wisely or use it as a method for living beyond their means. Credit cards have both positive and negative aspects, and using that knowledge will help you make informed spending decisions and maintain good financial health.

credit
the ability to make purchases with the promise that the money will be repaid later

Credit Card Basics

As consumers we are bombarded daily with advertisements and offers from credit card companies. Credit cards are big business in the U.S. They offer consumers a fast, convenient way to make purchases. However, sometimes credit card users forget what credit cards really are, and that if misused they can cause real problems in the future.

A **credit card** allows you to make purchases now based on your promise to pay later. A purchase made on credit is essentially a loan made to you by the card issuer.

credit card
a card issued by a bank, retail store or business that allows the card holder to repeatedly purchase products and services on credit

Career Link

Actuaries are involved with pricing and reserving for credit card life insurance and credit card disability coverage.

Credit cards are easy to use. When making a purchase in person, you can simply scan the card in an electronic card reader or allow the seller to imprint your card. To finalize the transaction, your signature is typically required. This is either done on a paper receipt generated after the card is scanned or by signing the screen on the card reader. Signing for the purchase means that you agree to repay the funds you have borrowed to make the purchase.

Online purchases are just as simple: you simply type in your card number and expiration date along with some additional information that proves you are the card holder. This typically includes your mailing address, which the online retailer verifies against the billing address your credit card company has on file. It may also include your card security code, or CSC (sometimes called the card verification code, or CVC), which is a three- or four-digit number located on the front or back of your card.

Many retailers also accept credit card payments over the telephone. The same type of security information for online purchases is typically required. It is important to maintain total privacy when transmitting personal information over the phone. Keeping phone calls private helps you avoid identity theft.

credit limit

the maximum amount of money that a credit card issuer will allow you to charge

Because a credit card is a loan made to you by a financial institution, you should expect that there are certain responsibilities attached to the privilege of having a credit card. One of these expectations is that you will not exceed your account's **credit limit** by borrowing, or **charging**, more than a certain agreed-upon amount.

charge

monies borrowed using a credit card

In addition to staying within your credit limit, people who use credit cards should expect to pay interest on the money they have borrowed, just as they would with any other loan. When you are granted a credit card account, the card issuer is required to clearly explain the **interest rate** associated with the credit card so that you are aware of how much the loan will cost you over time.

interest rate

the percentage you pay on the money you have charged

Credit Card Statements

Each month the bank that issued the credit card will send you a credit card statement. This may be mailed to you or can arrive as an e-mail statement, based upon your personal preferences. The statement will include several pieces of information about your account; each of these terms is briefly defined for you below and will be discussed in more detail later.

- **Payment due date:** the date by which the credit card company expects to receive your payment. Many credit card companies waive finance charges if the outstanding balance is fully paid by the payment due date.
- **Outstanding balance:** the amount of money you still need to repay
- **Finance charge:** the interest payment you owe on the credit card balance

Account Number: 1234 2345 3456 4567 Statement Closing Date: 2/29/12 Credit Limit: \$2,000.00 Available Credit: \$1,675.00		Customer Service Contact information here Send Payments To: Mailing address here																									
Account Summary Previous Balance: \$128.73 - Credits: \$0.00 - Payments: \$128.73 +Purchases and Other Charges: \$325.00 + Cash Advances: \$0.00 + Late Fee: \$0.00 + Finance Charges: \$0.00 = Outstanding Balance: \$325.00		Payment Information New Balance: \$325.00 Minimum Payment Due: \$5.63 Payment Due Date: 3/15/12 <i>Note: You may pay the balance in full at any time. The New Balance does not include any transactions, finance charges or fees billed or payment/credits made after the Statement Closing Date above.</i>																									
<table border="1"> <thead> <tr> <th>Type of Balance</th> <th>Annual Percentage Rate</th> <th>Daily Finance Charge Rate</th> <th>Average Daily Balance</th> </tr> </thead> <tbody> <tr> <td>Purchases</td> <td>12.00%</td> <td>.03287%</td> <td></td> </tr> <tr> <td>Cash Advances</td> <td>20.00%</td> <td>.05479%</td> <td></td> </tr> </tbody> </table>				Type of Balance	Annual Percentage Rate	Daily Finance Charge Rate	Average Daily Balance	Purchases	12.00%	.03287%		Cash Advances	20.00%	.05479%													
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2/25	2/27	121212121C	Annual Fee		\$25.00																						

- **Grace period:** a period of time, generally 20-25 days, before a credit card company starts charging you interest on a purchase
- **Late fee:** a penalty you are charged for not making your minimum payment by the established payment due date
- **Annual fee:** the amount of money the credit card issuer charges you for having the credit card account each year
- **Cash advance:** money you are allowed to obtain in the form of cash through the use of an ATM or bank
- **Cash advance limit:** the total amount of money you are allowed to take from the account in the form of cash
- **New purchases/charges:** a brief transaction history showing purchases made with the credit card since the last statement
- **Previous payments:** the amount you paid on the last credit card bill you received and any other payments you may have made since the last statement
- **Daily finance charge:** the interest rate you pay each day on the outstanding balance
- **Annual percentage rate:** the yearly interest rate you pay on the credit card balance

Above you will see an example of what a credit card statement could look like.

Interpreting Calculations on Your Credit Card Statement

Now that you have a basic understanding of what is included on a credit card statement, you need to understand how the amounts shown are calculated.

One of the most important numbers is the outstanding balance. This number is important because it helps determine the finance charge you will pay. To understand this more clearly, study the example below.

Try It!

Examples and Practice

On your last credit card statement you had an outstanding balance of \$390 on your account. During the current billing cycle, you made additional purchases totaling \$230, and you made a payment of \$180 toward the outstanding balance. To find the outstanding balance for the current monthly statement, you must add and subtract the debits and credits correctly. See the example below.

\$390.00	Outstanding balance from previous monthly statement
+ \$230.00	Additional purchases
- <u>\$180.00</u>	Payment made
\$440.00	Outstanding balance on current monthly statement

Because using a credit card is like taking a loan, the bank issuing the credit card must take measures to ensure that borrowers do not spend more money than they can repay. All credit cards have a specific credit limit based on the borrower's previous payment history and expected ability to repay the loan. By establishing the maximum amount of money the consumer can spend using the credit card, the bank protects itself and the consumer. The card's credit limit and current outstanding balance are tracked automatically. If a cardholder tries to charge more than the limit, the charge will be denied when the merchant swipes the card for payment. When this happens, the merchant refuses the card and the consumer must present an alternate form of payment.

On each monthly statement, you will see the **minimum payment** that you must make to keep the account current. Making the minimum payment (usually between 1.5% and 4% of the outstanding balance plus any finance charges that have occurred), shows the bank that you intend to repay the loan fully and you have the discipline to repay the loan in full.

minimum payment
the least amount you can pay on the card and still keep your account in good standing; typically, a percentage of what you owe on the outstanding loan or some pre-set minimal amount if your balance is low

Try It!

Examples and Practice

Based on our example above, let's assume that the minimum payment due is 1.5% of the Outstanding Balance. To calculate this amount, we multiply \$440 by 1.5% (.015) to get a minimum payment of \$6.60.

Practice calculating the minimum payments on the following balances:

- Balance = \$675 and minimum payment amount is 2%
- Balance = \$535 and minimum payment is 3.5%



When making your credit card payment, it is important to submit the payment by the due date shown on the credit card statement. If the credit card company does not receive your minimum payment by the established date, then your credit card privileges can be suspended or revoked and you will no longer be able to use your card. Credit card companies record payment history electronically and share this data with credit rating agencies. If you establish a pattern that indicates you may not repay your loans, it can become difficult for you to get new cards or other types of credit (including loans) in the future, as this behavior will have a negative impact on your credit rating.

One way that credit card issuers make money is through finance charges. To determine finance charges on an account, the credit card company must calculate its **average daily balance**.

average daily balance
the average amount you owe on the credit card during each day of the billing cycle

Try It!

Examples and Practice

To learn to calculate average daily balance, study the spreadsheet below (continuing on to the next page). Notice that it spans a typical billing period (30 days) and includes all new charges and payments received.

	A	B	C	D	E
1	Day	Beginning Balance	Charges Made	Payments Received	Ending Balance
2	6/1	\$390.00			\$390.00
3	6/2	\$390.00			\$390.00
4	6/3	\$390.00			\$390.00
5	6/4	\$390.00			\$390.00
6	6/5	\$390.00	\$25.00		\$415.00
7	6/6	\$415.00			\$415.00
8	6/7	\$415.00			\$415.00
9	6/8	\$415.00			\$415.00
10	6/9	\$415.00	\$45.00		\$460.00
11	6/10	\$460.00			\$460.00
12	6/11	\$460.00			\$460.00

Examples and Practice (continued)

	A	B	C	D	E
1	Day	Beginning Balance	Charges Made	Payments Received	Ending Balance
13	6/12	\$460.00			\$460.00
14	6/13	\$460.00			\$460.00
15	6/14	\$460.00			\$460.00
16	6/15	\$460.00			\$460.00
17	6/16	\$460.00	\$105.00		\$565.00
18	6/17	\$565.00			\$565.00
19	6/18	\$565.00			\$565.00
20	6/19	\$565.00			\$565.00
20	6/20	\$565.00			\$565.00
22	6/21	\$565.00			\$565.00
23	6/22	\$565.00			\$565.00
24	6/23	\$565.00			\$565.00
25	6/24	\$565.00	\$40.00	\$180.00	\$425.00
26	6/25	\$425.00			\$425.00
27	6/26	\$425.00			\$425.00
28	6/27	\$425.00			\$425.00
29	6/28	\$425.00	\$15.00		\$440.00
30	6/29	\$440.00			\$440.00
31	6/30	\$440.00			\$440.00
32					
33	TOTALS		\$230.00	\$180.00	\$13,980.00

To calculate the average daily balance, utilize the following formula:

Average Daily Balance = Sum of the Ending Daily Account Balance for the billing period / Number of Days in the Billing Period

In our example, this would be $\$13,980 / 30 = \466 .

Practice calculating the average daily balance on an account based the data below.

- Sum of ending daily account balance for period = \$22,640 and it is a 30-day billing period
- Sum of ending daily account balance for period = \$9,200 and it is a 31-day billing period

Once you know the average daily balance, you can calculate the finance charge. Start by finding the annual percentage rate for purchases listed on the sample statement. It is 12.00%. The annual percentage rate must be divided into a daily percentage rate in order to calculate the finance charge for the billing period. This is done by using the formula below:

Daily Finance Charge Rate = Annual Percentage Rate / 365 (number of days in a year)

In our example, this would be $12.00\% / 365 = .03288\%$.

Practice calculating the daily finance charge rate based on the data below.

- *Annual percentage rate = 22.99%*
- *Annual percentage rate = 18.5%*

To find the finance charge for the billing period, use the following formula:

Finance Charge = Daily Finance Charge Rate x Days in Billing Period x Average Daily Balance. Round up to the nearest cent.

In our example, this would be $.03288\% \times 30 \times \$466 = \$4.60$

Practice calculating the finance charge based on the data below.

- *Daily finance charge rate = .04133, 30 day billing period, \$572 average daily balance*
- *Daily finance charge rate = .02377, 31 day billing period, \$359 average daily balance*



Other Limits and Fees

As mentioned earlier, sometimes there is an annual fee that must be paid for the privilege of using a credit card. These fees are automatically assessed to the card on a yearly basis and can range from as little as \$25 up to \$300 or more, depending on the account. In addition to annual fees, when the minimum balance on a credit card is not paid by the due date, a late fee is assessed. These fees are typically \$25.00 or more. These are automatically added to the account balance. Finally, most credit cards offer cardholders the option of using the card to obtain cash. The amount of cash is limited, and it is generally only a small percentage of the total credit available on the account. Cash advances generally have a higher rate of interest charged on the amount of the advance than purchases made from merchants.

Choosing a Credit Card

As with any loan, it is important to do your homework before selecting a credit card. Reading the fine print on credit card offers and applications is a must. To get you to apply for their card, many banks make special offers that may or may not expire after a certain period of time. Many banks offer credit cards with no annual fees and special interest rates. The special interest rates may be very low, or even zero percent, but these rates are often temporary and apply for only a short period of time. Some credit cards offer points, frequent flyer miles, cash back on purchases made, or other rewards for selecting a specific card. Retailers may provide additional discounts, which could be significant, if the merchandise you purchase is charged to that retailer's branded credit card. While all of these benefits may seem attractive, it is important to read carefully to see if there are hidden fees or requirements for card use in order to qualify for these types of incentives. Finally, many credit card companies encourage people to transfer debt from higher interest rate credit cards over to another account with lower interest rates charged. Consider all of these options as you select a card or several cards that will meet your purchasing needs.

Radio Frequency Identification Cards (RFID)

Many banks have introduced RFID cards, which are contactless credit cards. RFID cards make purchasing quicker and easier, since they only require a "swipe" and not a signature. Users of these cards have to weigh the added convenience against the risks of identify theft.

Independent Practice

You have just purchased a new gaming system and some new games using your credit card. You paid \$325 for the system and the games. You will need to receive the Independent Practice Handout from your teacher. Using the data provided in the handout, create a spreadsheet that will analyze how long it will take you to pay off the balance assuming monthly payments of different amounts (such as \$10, \$25, or \$50 per month) and the true cost of the purchase.

Building Your Future

Chapter 4: Taxes



Did You Know....

Three out of four individual taxpayers actually get a refund after filing their annual tax returns, and the average refund amount is about \$3,000.

Key Terms:

- Taxes
- Sales tax
- Excise tax
- Property tax
- Assessed value
- Market value
- Income tax
- Exemptions
- Personal exemption
- Dependent exemption
- Deduction
- Charitable contributions
- Itemized deductions
- Taxable income
- Progressive tax rates
- U.S. Treasury
- Internal Revenue Service (IRS)
- Payroll taxes
- Social Security
- Medicare
- Credit
- Child tax credit
- Refund

What You'll Learn

Taxes are a part of everyday life. Virtually everyone who spends or earns money pays some sort of tax. However, many people do not have a thorough understanding about the taxes they are paying, particularly when it comes to income taxes. Most of you will be wage earners in the near future, if you're not already. It's important to understand why you are taxed, what taxes are used for, and how taxes and tax laws can affect your earnings and spending habits.

What Are Taxes?

Benjamin Franklin once said, "In this world nothing can be said to be certain, except death and **taxes**." When thinking about this quote, one realizes that

taxes
*fees charged by the
government on products,
activities or income*

Career Link

Taxes assessed by state governments on insurance products are generally based on the premiums the customer pays rather than the policy's overall benefit amount. These taxes are not like sales taxes, which are based on the total cost of goods sold. Actuaries determine what rates to charge for insurance, and they must include the appropriate taxes when calculating premium rates.

taxation is a part of life as we know it. Nearly everything we purchase includes some sort of tax in the price. We pay taxes on the money we earn. We pay taxes on the property we own. To understand why taxes are necessary, you must first understand what a tax is. It is through taxation that federal, state and local governments are able to provide programs and services that benefit their citizens and others. Without taxes, many of the things we take for granted would not be available. These things include roads and highways, public education, financial assistance for those suffering from the effects of disease or natural disasters, police and fire protection, and other services.

Types of Taxes

sales tax
tax imposed by many states,
counties and cities on
purchases

There are many types of taxes used by governments as a means of collecting funds. One that you are probably familiar with is **sales tax**. When you buy a CD for \$13.99 at a retail store, the total cost is not \$13.99. A percentage of the sale is added on in the form of a tax. The tax rate varies by geographical location, but it is not unusual to pay 5-10% in sales tax.

excise tax
a state or federal tax placed
on non-essential
consumer goods

Certain products and services have higher tax rates: these include tobacco products, alcohol, gasoline, hotels and sometimes restaurants. This higher tax rate includes an **excise tax**, which is a surcharge. For example, i) there is a federal gas tax of 18.4 cents per gallon, regardless of the price of gas; ii) the average state excise tax is about 20.9 cents per gallon; and iii) other taxes are about 9.5 cents per gallon, for a total of 48.8 cents per gallon in taxes. Similarly, alcohol and cigarettes are also generally taxed at a flat rate, regardless of the brand or sale price.

Try It!

Examples and Practice

To calculate the amount of sales tax due on an item, you must multiply the cost of the item by the tax rate. You must then add this amount to the item's cost. Using the CD mentioned above as an example, this formula would work as follows:

$$\begin{aligned} \$13.99 \text{ (cost of CD)} \times 5\% \text{ (sales tax rate)} &= \$0.70 \text{ (amount of sales tax due)} \\ \$13.99 \text{ (cost of CD)} + \$0.70 \text{ (sales tax)} &= \$14.69 \text{ (total cost to purchase the CD)} \end{aligned}$$

Use the data below to determine the total cost of each item.

- You purchased a new pair of shoes for \$34.99 and the sales tax rate was 7.5%
- You purchased a bicycle for \$199.99 and the sales tax rate was 6.75%

Use the data below to determine the amount paid in excise taxes.

- You purchased 14.75 gallons of gasoline at \$3.79 per gallon. Using the 48.8 cents per gallon rate discussed above, what is the total amount of excise tax you paid?
- What if you had paid \$4.29 per gallon of gas? How would this affect the amount of total tax paid?

People who own some types of property are subject to **property taxes**. In general, at least 30% of the money collected from property taxes is used to pay the cost of running public schools in that city or county. Property taxes are based on the **assessed value**, which is often less than the **market value** of your property.

property tax
tax paid by people who own items such as homes, land, and vehicles to the city and/or county where the property is located

assessed value
the amount the property is worth for tax purposes as determined by city or county assessors

market value
what you would receive if you sold the property

Try It!

Examples and Practice

Let's say your parents own a home that is worth \$200,000. The assessed value of the home according to the County Assessor is \$175,000. While your parents could probably sell the home for \$200,000, they only have to pay property taxes on \$175,000. The annual property tax rate in your county is 1.2%. To calculate the annual property taxes for the house, simply multiply the assessed value amount by the property tax rate like we have done below.

$$\$175,000 \text{ (assessed value of house)} \times 1.2\% \text{ (property tax rate)} = \$2,100 \text{ (annual property tax)}$$

Use the data below to determine the property tax for each item.

- You live in a \$150,000 home with an assessed value of \$115,000 and the property tax rate is 1.75%
- You own two vehicles, one with an assessed value of \$1,500 and another with an assessed value of \$9,250. The vehicle tax rate in your county is 2%. How much tax will be due for each vehicle? For both vehicles together?



income tax

tax paid on the money one earns from working

exemptions

items that can be deducted from one's total income before taxes are assessed

personal exemption

exemption for someone who cannot be claimed as a dependent by another taxpayer

dependent exemption

exemption for someone who relies on the taxpayer for support including food, clothing and shelter

deduction

amount subtracted from taxable income

charitable contributions

money that was contributed to charities

itemized deductions

a list of items that can be deducted from total income

The biggest tax paid by most people is **income tax**. Income taxes are typically charged by federal and some state and local governments and are based on the wages, salaries, tips and investment income earned by an individual during each calendar year. To calculate the amount due in taxes, each worker must file specific tax returns with the federal, state and local governments to show how much income they have earned and how much income tax they must pay. Most people do not pay taxes on every dollar earned because of special rules that apply to taxpayers based on certain conditions.

We will use the following scenario to show how income taxes are determined.

Family of five, both parents working, three children ages 2-14

Income: Total family income for the previous calendar year was \$102,000

Property: Home with a \$100,000 mortgage

Mortgage Interest Paid: \$8,000

Property Taxes Paid: \$1,500

State/City Taxes Paid: \$3,800

Charitable Contributions: \$700

Each year the federal government allows for various **exemptions** on income taxes. During the 2012 calendar year, the U.S. government allowed a **personal exemption** of \$3,800 for each parent and a **dependent exemption** of \$3,800 for each child in the household. In the scenario presented above, the personal exemptions = $\$3,800 \times 2$ (both parents) and the dependent exemptions = $\$3,800 \times 3$ (the children) for a total of \$19,000. The family can claim this amount as a **deduction**.

In addition to exemptions, federal laws allow taxpayers to deduct what they paid for state taxes, property taxes, mortgage interest and **charitable contributions**. In order to take advantage of these deductions, the family must complete a special form where their **itemized deductions** are totalled and then offset against income earned.

Try It!

Examples and Practice

Using what you have learned from the paragraphs above, determine the amount that our sample family can deduct from their \$102,000 income for each of the following items:

- *Personal exemptions*
- *Dependent exemptions*
- *Total exemptions*
- *State/City taxes*
- *Property taxes*
- *Mortgage interest*
- *Charitable contributions*
- *Total itemized deductions*

Once taxpayers have determined all of their exemptions and deductions, they can calculate their **taxable income**. This is done by subtracting the total amount of exemptions and deductions from the income that was earned or realized (from investments).

taxable income
the amount of income
subject to income taxes

Try It!

Examples and Practice

Subtract the exemptions and deductions listed above from our family's total income to find the taxable income for our family.

The government uses various tax rates to assess taxes on taxable income. The higher the taxable income, the higher the tax rate. This is called a **progressive tax rate**. Examples of how these rates can vary are shown below (the following information is based on 2012 rules for taxpayers filing jointly, as in our example):

progressive tax rate
a schedule in which the tax
rate rises as the amount of
taxable income increases

- 10% tax due on the first \$17,400 of taxable income
- 15% tax due on the next \$53,300 of taxable income
- 25% tax due on the next \$72,000 of taxable income
- 28% tax due on the next \$74,750 of taxable income
- 33% tax due on the next \$170,900 of taxable income
- 35% tax due on all remaining taxable income

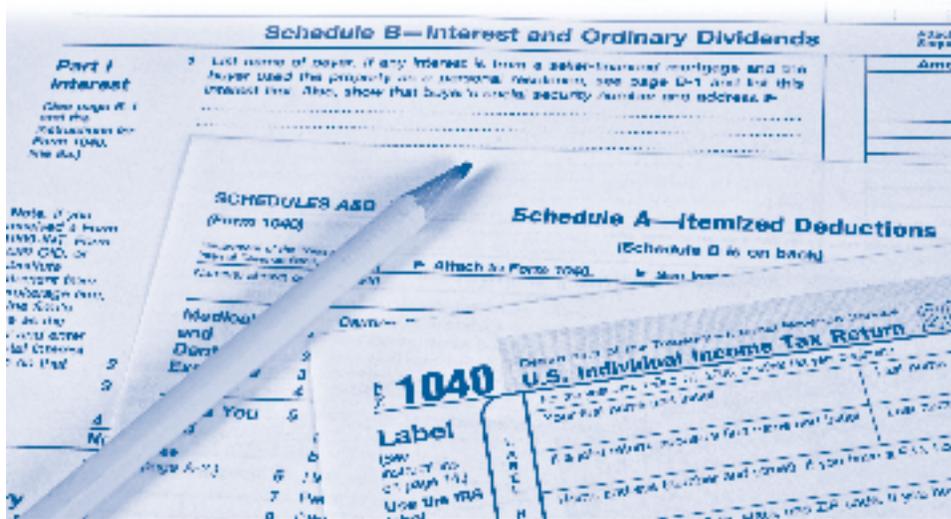
Note that these numbers will change for those filing individually; check the details on your tax forms when calculating your own taxes. Tax rates after 2012 can be legislated and are likely to change.

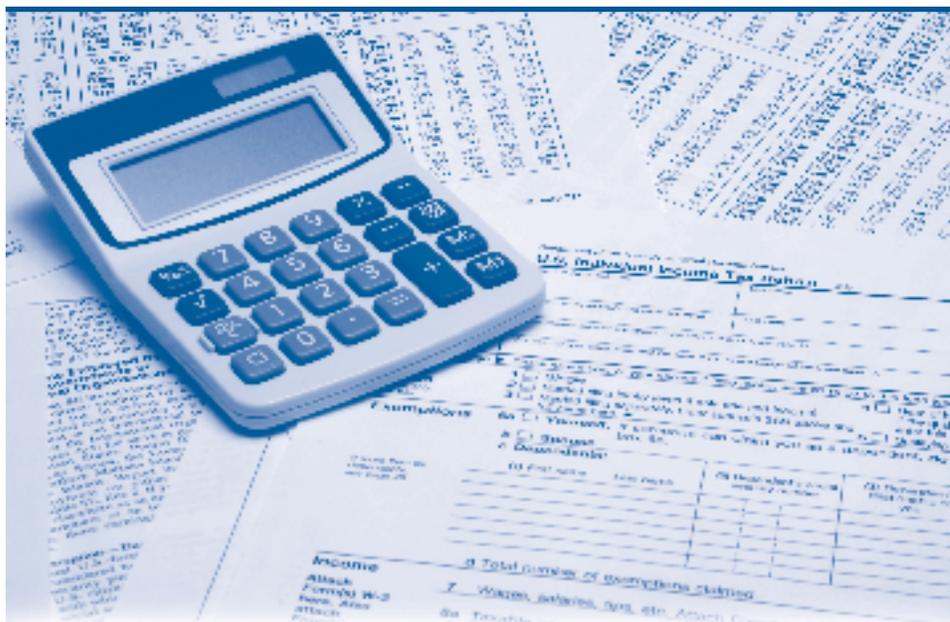
Try It!

Examples and Practice

Using the taxable income you calculated earlier, determine how much the family's total income tax will be using the sample tax rates listed above.

HINT: The family's taxable income exceeded \$17,400, therefore you will need to use two different tax rates to find the total income tax due.





U.S. Treasury

department within the U.S. government

Internal Revenue Service (IRS)

government agency that collects taxes for the U.S. government

payroll taxes

deducted from the wage earner's gross pay by the employer and used to fund federal government programs such as Social Security and Medicare

Social Security

a federal government program funded through payroll taxes; designed to provide retirement and disability income for those meeting the specified criteria

Medicare

a federal government program funded through payroll taxes; pays for health care expenses for citizens over age 65, or those who meet other special criteria

Withholding Taxes

In our earlier example, we saw that the family owed a significant amount in taxes for the year. Do you think the parents wrote a check to the government for this full amount? In most cases, the answer is no. When employers issue paychecks to their employees, the government requires them to withhold taxes from each paycheck and then send the amount withheld to the **U.S. Treasury** through the **Internal Revenue Service**.

Since people like to know how much money they should expect to receive in their paychecks—known as “take-home pay”—it is important that they understand how withholding taxes affect the amount they take home each pay period.

In our example, assume that one of the parents earns an income of \$49,000 annually, and receives a paycheck every two weeks (26 paychecks per year). Based on what the employee expects to pay in income taxes, the employer deducts \$149 for federal taxes and \$48 for state taxes from each paycheck. In addition, the employer also deducts another \$75 for health insurance. (Note: All withholding amounts shown in this paragraph are sample amounts only.) Another deduction comes in the form of **payroll taxes**, which fund programs such as **Social Security** and **Medicare**.

Employees pay a tax rate of 6.2% for Social Security, which is matched by their employers, and which is only applied to the first \$110,000 in wages. (This is as of 2012; the cap has gradually increased over time.) Employees pay an additional tax rate of 1.45% for Medicare, which is also matched by employers; there is no cap on this tax. The two are usually calculated together, at 7.65%.

Try It!

credit

an amount of money applied directly to the amount of taxes owed to the government

child tax credit

a special credit given to joint taxpayers with taxable income less than \$110,000 annually in the amount of \$1,000 for each child under age 17 (also available to single taxpayers who meet a different income requirement; if your taxable income is above \$110,000, your child tax credit is reduced or eliminated)

refund

a check or automatic deposit for the amount by which taxes were overpaid

Examples and Practice

Let's determine how withholding taxes affect the amount of money in this parent's paycheck. To do this, complete each of the steps below.

- Determine the amount of the parent's paycheck before withholding taxes by dividing the parent's annual salary by the number of paychecks received in one year.
- Find out the total deductions made from each paycheck by adding together what the employer will withhold from the check for federal taxes, state taxes, and payroll taxes.
- Subtract the total amount of deductions from the amount of each paycheck to find the take-home amount.
- Find out how much this parent pays in federal taxes by taking the amount of federal tax withheld from each paycheck and multiplying it by the number of paychecks.
- Suppose that the other parent had \$159 withheld for federal taxes from each of the 26 paychecks s/he earned. How much total federal tax has already been withheld for the second parent?
- Determine the total amount of federal tax that has been withheld for both parents.
- Will this amount be enough to pay the taxes the family owes? Explain.

Before filing their final tax return, the family decides to take one last look over the return. They notice that they have forgotten to take an important tax **credit**. The family is very happy to find that they are eligible for a **child tax credit** for each of their three children. Because this is a direct credit against the taxes owed, the family may now be eligible for a **refund** if they have overpaid the federal government over the course of the year.

Examples and Practice

The family has three children and each is eligible for a \$1,000 child tax credit. Answer each of the questions below.

- How much will the total child tax credit be for this family?
- Will the family now need to pay taxes or will they receive a refund?
- What will the amount of their tax payment OR refund be?

Try It!

Independent Practice

Using the data you recorded from this chapter, complete a tax form for this family to the best of your ability. Compare your results with those of a classmate and determine the percentage of their total income this family actually paid in taxes.

Building Your Future

Appendix: Online Resources



Below you will find a list of additional resources related to the chapters in this book. These resources can be used to extend your understanding and study of the subjects in each section.

Chapter 1: Savings Accounts

America Saves

“Set a Goal, Make a Plan, Save Automatically”

<http://www.americasaves.org/blog/351-set-a-goal-make-a-plan-save-automatically&Itemid=13>

Chapter 2: Checking Accounts

Consumer Action

“Checking Account Check List”

http://www.consumer-action.org/english/articles/banking_basics_checking_account_check_list_english

Chapter 3: Credit Cards

Center for Responsible Lending

Provides general information about credit cards along with tools and resources for credit card use.

<http://www.responsiblelending.org/credit-cards/>

Schoolwork

Geared specifically for high school students, the site provides an overview of credit card use, the application process and links to information on personal credit ratings, etc.

<http://www.schoolwork.org/student-credit-cards.html>

Chapter 4: Taxes

Internal Revenue Service

The IRS website offers a great deal of information on taxes, withholding, and other subjects, and offers all the forms required to calculate and submit tax payments.

<http://www.irs.gov>