By the end of this unit, you will:

- Know the difference between saving and investing
- Be familiar with the time value of money
- Be able to compare investment options
- Recognize the risks and rewards of investing
- Know how to integrate investing into your financial planning

UNIT THREE

Investing: Making Money Work for You

Your parents were right: money doesn't grow on trees. It actually grows on other money—which is where we get the old saying, "It takes money to make money." Money does have an amazing ability to make more money. The good news is it doesn't take much money to make this happen.

You already have several powerful tools for reaching your financial goals, including a financial plan to help you map out the route and a spending plan to help you get there. In this unit, you will be introduced to two more powerful tools—saving and investing—which will really put your money to work for you.

What Do You Think?

Answer true or false to the following statements:

	Adam started saving $50 per month when he turned 18, while Beth started saving $100 per month when she turned 24. They both earn 6% on their money. Beth will have more money by the time they both turn 30.
	A dollar today is worth less than a dollar in the future.
	The higher the interest rate, the less time it takes to reach a savings goal.
	The smaller the down payment someone makes on a car, the less interest the owner pays for a car loan.

Saving ≠ Investing

In Unit 2, you learned how important it is to pay yourself first. But what should you do with that money? You could put it in your dresser or under your mattress. While you may always know where it is, it won't be doing anything except gathering dust. Instead, you should consider saving or even investing it.

Saving is what people usually do to meet short-term goals. Your money is very safe in a savings account, and it is usually earning a small amount of interest. It's also easy for you to get to your money when you need it—just go to your bank and make a withdrawal.

Investing means you're setting your money aside for longer-term goals. There's no guarantee that the money you invest will grow. In fact, it's normal for investments to rise and fall in value over time. But in the long run, investments can earn a lot more than you can usually make in a savings account.

Why are saving and investing so important to your financial plan? For one, saving or investing money for your financial goals makes you less tempted to spend it. It's in a totally different account from the one you pay your everyday expenses. And it's not just sitting there burning a hole in your pocket.

But the best reason for investing is that your money is actually making money for you. Any interest or investment gains you earn get you that much closer to your financial goals. And you didn't have to do anything for it! But you'll learn more about this amazing money principle in the next section.

TRY IT!

Exercise 3A:

Ways to Save and Invest

Brainstorm at least three ways that you know people save money (set aside money to use later) and at least three ways people invest money for future income or profit.

Save
Stash money in your dresser

Invest
Buy shares of a stock

Did You Know?

There's a huge advantage to investing early. Let's say you start investing $2,000 every year when you're 18. You put it into an account that grows by 7% each year, and continue to invest the same amount for 10 years. Then you stop and just let that money sit for the next 38 years, where it continues to grow at 7% a year, until you're 65 years old.

Now say your sister decides not to invest until she turns 31. Then she puts $2,000 a year into an account that also earns 7% a year—and does it for the next 35 years, until she turns 65. Who will have more money?

You will! About $85,000 more, in fact. After investing only $20,000, your account will be worth $361,418. But even though she has invested $70,000, your sister will have only $276,474. That's because you had the power of time on your side. ***Figure 3-1*** demonstrates this point.

If you stick with investing $2,000 per year from age 18 through age 65, you could end up with more than $706,000!

Figure 3-1: The Advantage of Starting Early

The Impact of Time on the Value of Money

YOU[1]	
AGE	SAVING EARLY AT 7%
18	$2,000
19	$2,000
20	$2,000
21	$2,000
22	$2,000
23	$2,000
24	$2,000
25	$2,000
26	$2,000
27	$2,000
NO FURTHER INVESTING FROM AGE 27 to 65	
TOTAL INVESTMENT: $20,000	
YOUR TOTAL AT AGE 65:	**$361,418**

VS

YOUR SISTER[1]	
AGE	SAVING LATER AT 7%
TOTAL INVESTMENT: $70,000	
NO INVESTING UNTIL AGE 31	
31	$2,000
32	$2,000
33	$2,000
34	$2,000
35	$2,000
36	$2,000
37	$2,000
38	$2,000
39	$2,000
40	$2,000
41	$2,000
42	$2,000
43	$2,000
44	$2,000
45	$2,000
46	$2,000
47	$2,000
48	$2,000
49	$2,000
50	$2,000
51	$2,000
52	$2,000
53	$2,000
54	$2,000
55	$2,000
56	$2,000
57	$2,000
58	$2,000
59	$2,000
60	$2,000
61	$2,000
62	$2,000
63	$2,000
64	$2,000
65	$2,000
YOUR SISTER'S TOTAL AT AGE 65:	**$276,474**

Your Difference Due to Starting Early: $84,944

[1] The investment periods shown reflect 10 complete years for "You" and 35 complete years for "Your Sister." Investments are assumed to be made annually and at the end of the investment period.

The Time Value of Money

Is a dollar always worth a dollar? It may seem like a silly question, but a dollar is not always worth a dollar. Sometimes it's worth more, sometimes less. How can that be? The value of a dollar changes dramatically depending on when you get it and what you do with it. So time is a critical variable in the exact value of a dollar. ***Time value of money*** refers to the relationship among time, money, and rate of interest.

Say you have $100 today. If you keep it in your dresser drawer for a year, you will still have $100 in a year. But in a year, $100 may buy less than it does now because of ***inflation,*** which is a rise in the cost of goods and services over time. Inflation decreases the spending power of each dollar you have. (Do you remember what a candy bar cost when you were six years old?)

But say you put that $100 into a savings account that pays 3 percent interest a year. Using the following formula for simple interest, a year later you will have $103 because of earned interest:

Interest **= Principal x interest rate x time**

$3 = $100 x .03 x 1 year

Earned interest is the payment you receive for allowing a financial institution or corporation to use your money. You may not realize it, but your bank doesn't keep every dollar you deposit on hand. It may lend some of that money to other bank customers or deposit it with a government bank for safekeeping. So the bank compensates you for that by paying you interest on your savings account.

Both of these examples demonstrate the time value of money and show how much its three elements—**time, money, and rate of interest**—can help you reach your financial goals. In short:

1. The more **money** you have to save or invest, the more money you are likely to earn.
2. The higher the **rate of interest** you earn, the more money you are likely to have.
3. The sooner you invest your money, the more **time** it has to make new money, making it likely that you could earn much more as a result.

Cool, huh? So regardless of how much or how little you have to save and invest, time is truly on your side, helping you make more money!

Now let's see how well you understand the compounding concept, as you complete Exercise 3B.

Exercise 3B:

The Power of Compounding

Let's assume you have $10 you're ready to invest. Using the two interest rates in the table below, fill in the compound value of $10 for each of the time periods listed. For example, $10 growing at 4% is worth $10.40 after one year. For the second year, multiply $10.40 by 4% and add the result to $10.40, for a total of $10.82.

Interest Rate	1 Year	2 Years	4 Years	6 Years
4%	$10.40	$10.82		
8%				

Show Me the Money!

The reason the time value of money concept works is because of compounding. ***Compounding*** or ***compound interest*** is the idea of earning interest on interest. Think of it as super-sizing your account, because *it's one of the most powerful principles in personal finance*. It can make a big difference in whether and when you achieve your financial goals.

Let's say you put $100 into an investment that earns 10 percent a year—$100 x 10% = $10. If you add that $10 to the $100 you started with, you now have $110 in your account at the end of year one. But in year two, you will earn 10 percent on the entire $110 (not just the original $100). So you'll actually earn $11 during year two, bringing your balance up to $121 at the end of the year. And like the Energizer Bunny®, this will just keep going and going . . .

If you want to see how much you'll have after five years, you can use this formula to calculate the compound interest:

$$A = P\,(1+i)^n$$

A is the amount in the account, **P** is the principal (which is the original amount invested), the interest rate (**i**) is expressed as a decimal, and **n** is the number of years compounded.

And now you see that after five years, you'll have $161.05—and you only put in the $100!

Albert Einstein was so impressed with this concept that he called compounding "the most powerful force in the universe." But you don't have to be a genius to take advantage of it. You don't even have to be rich to take advantage of it. **The most important thing is to get into the saving and investing habit NOW.** Your money will start working for you right away, increasing the chances that you'll have the money for your financial goals when you need it.

Assignment 3-1: Time Value of Money

Use a calculator to determine the value of the investments in the scenarios below.

1

Diana invests $500 today in an account earning 7%. How much will it be worth in:

5 years? _____

10 years? _____

20 years? _____

2

Now Diana finds an account that earns 10%. How much will her $500 be worth at the new rate in:

5 years? _____

10 years? _____

20 years? _____

3

Elaine needs to save $4,000 in 4 years. If she can set aside $1,000 now, what rate of return does she need on her account?

_____

The Price of Procrastination

You know that the more time you have to invest, the more money you are likely to end up having. But the flip side of that is true too. By waiting to invest, you're paying an opportunity cost.

Let's talk about the cost of procrastinating. It's easy to say that you don't have enough money to get started saving and investing now—"I'd rather wait until I have more money." But that decision probably costs you more than you think because the power of compounding works both ways. It costs you because waiting means giving up earning compound interest from even just a small amount of money.

Think about it—how much *less* money would you have if you waited 10 years to invest $100 per month at 8 percent, versus starting to do it right now? *[Hint: Calculate what you would have in 10 years versus the $0 you'll have if you wait.]*

And remember, while saving for your goals involves delayed gratification, procrastinating in saving for your goals is *really* delayed gratification! At least, when you're using a spending plan and saving, you have an idea of when you can expect to achieve your goal.

The Rule of 72

You now know that the concept of compounding means that your money is making more money even while you sleep. One way to see how powerful this can be is called the ***Rule of 72.***

Mathematicians say that you can see how long it will take you to double your money simply by dividing 72 by the interest rate. So let's say your grandparents give you $200 for your birthday and you want to use it to start saving for your own car. If you put the money into an account that earns 6 percent interest a year, how long will it take to grow to $400?

72 ÷ 6% interest = 12 years

So in 12 years, your money will have doubled to $400. But what if your dad tells you about an account where you could earn 9 percent a year on your money?

72 ÷ 9% interest = 8 years

Now you will have that $400 in only eight years. By earning just a little bit more interest, you reduce the time to double your money by four years. And this doesn't include any additional money that you may put into your account over time, which would only speed up the process.

But what if eight years seems too long to wait and you want that $400 in four years instead? The Rule of 72 can also tell you the interest rate you need to earn to double your money in a certain amount of time. So for four years it would be:

72 ÷ 4 years = 18% interest

With only four years to invest, your money will double if you can find an investment that earns 18 percent. Of course, that may be difficult to do as the stock market typically averages only about 10 percent a year over the long term. But you can certainly see how even a small difference in the interest rate you earn can make a big difference in how quickly your money compounds—earning you more money—over time.

Exercise 3C:

The Impact of Higher Returns

Use the Rule of 72 to calculate the answers to the following questions. Show your calculation and answer for each question in the space provided.

1. What interest rate would be necessary to double a $100 investment in 24 years?

2. How many years would it take to double $100 if it earned interest at a rate of 8% per year?

3. What interest rate would be necessary to double a $100 investment in 11 years?

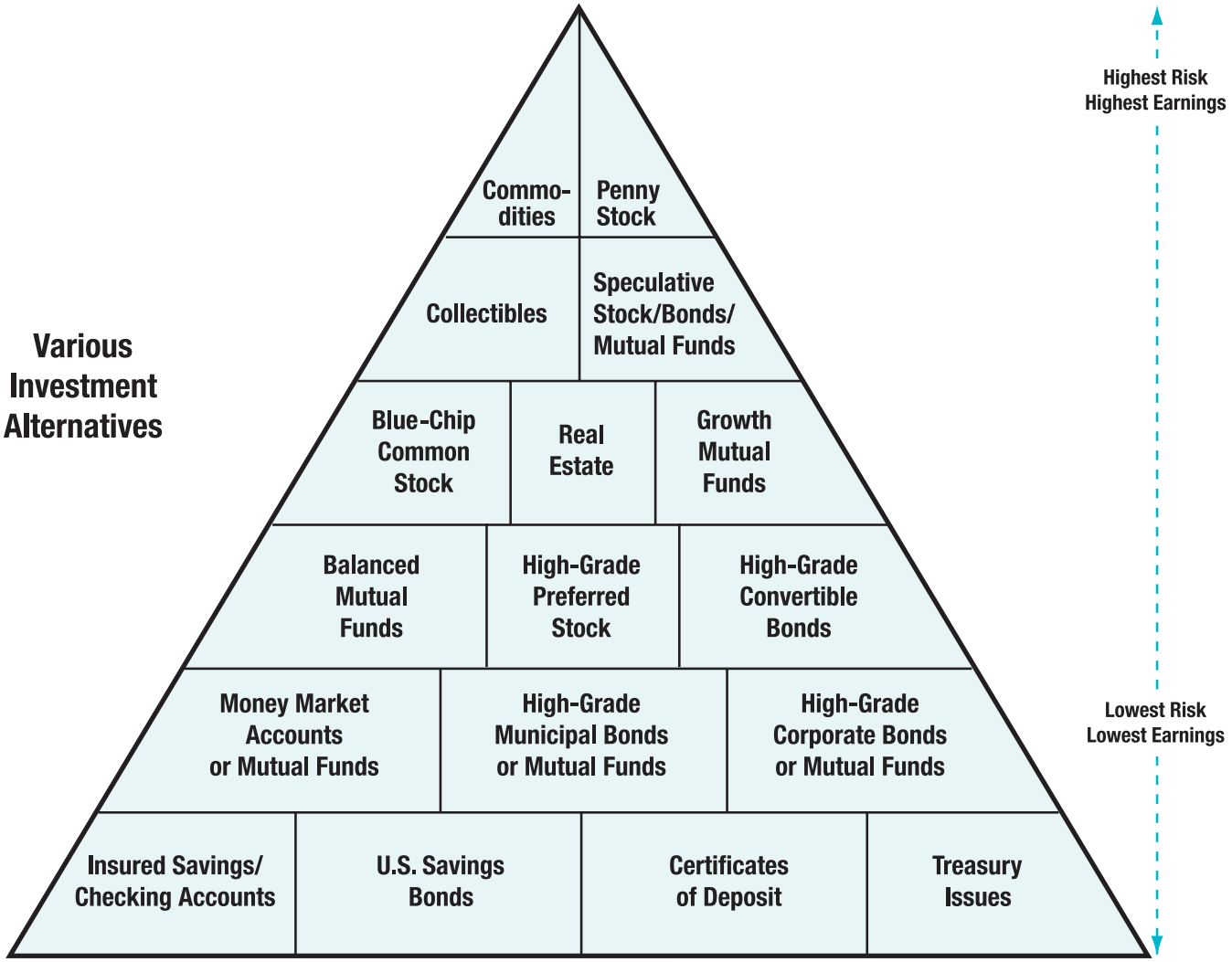
4. How many years would it take to double $100 if it earned 7.75% interest per year?

Risky Business

When many people hear the word "investment," they think of the ***stock market,*** the place where stocks are bought and sold, and they think about the risk of losing all their money. But risk is simply the uncertainty that the anticipated return will be achieved. All investments involve some degree of risk—even relatively safe investments like an insured savings account. That's because the interest earned on the savings account may not keep pace with inflation, decreasing an investor's future purchasing power. But a savvy investor understands and takes steps to manage her or his risk.

The risk/reward trade-off is the principle that an investment must offer higher potential returns to compensate for the increased potential unpredictability. So the greater the risk you take with your money, the higher the potential returns on your investments. The lower the amount of risk you take, the lower the potential returns will likely be. ***Figure 3-2*** demonstrates this for some common types of investments.

Figure 3-2:
Financial Planning Pyramid



The risk/reward trade-off is key to choosing investments that are right for you, because most people have different ideas about how much risk they should take with their money. Some are conservative and want to keep it someplace safe, like a savings account. Others are more aggressive and are willing to invest it someplace riskier, like the stock market. In the end, you have to decide how comfortable you would be with an investment that could frequently go up and down in price.

Of course, the reward for taking on risk is your return on investment. Return can be made up of income such as interest or ***dividends*** (which are a share of the profits you receive as a stockholder). Return can also come about from growth stock prices, called ***capital gains.*** If an investor buys a stock and sells it later at a higher price, the difference between the purchase price and the selling price is called a ***capital gain.*** So if you bought Stock Z for $10 per share in 2000, then sold it for $25 per share in 2005, your profit, or capital gain, is $15 per share. If an investor ends up selling a stock at a lower price, the difference is called a ***capital loss.***

When talking about return, people usually cite an investment's ***rate of return*** or rate of interest, which is simply the annual percentage return on an investment. In short, it tells you how fast your money is growing.

Exercise 3D: Risk versus Reward

Two people have different investment strategies. Read about their situations and then follow directions to compare their investment portfolios.

Carrie Montgomery, age 27 and single, has an emergency fund in an insured savings account. Her other investments include a balanced mutual fund, a growth mutual fund, and collectibles in the form of baseball cards. Sixty percent of the money in these investments is in a growth mutual fund, and 20 percent of the money is in each of the other two investments.

Darren Miller is 22 and also single. He has an adequate emergency fund in U.S. savings bonds. The remainder of his investment program includes equal amounts of money invested in a money market mutual fund, high-grade preferred stock, and blue-chip common stock.

Elements to Compare	Carrie	Darren
Who has a lower-risk investment program?		
Who has the potential for higher earnings?		
What is each person's highest-risk investment?		
What is each person's lowest-risk investment?		

An Array of Investment Options

There are many ways to put your money to work for you. We're going to talk about an array of different investment options, all of which work better in certain situations than others.

Generally, people choose to invest for one of two reasons: *income* or *growth*. Income means they get paid—in cash—for owning the account or investment. Growth means they buy and hold an investment with the hope that it will increase in price, over time.