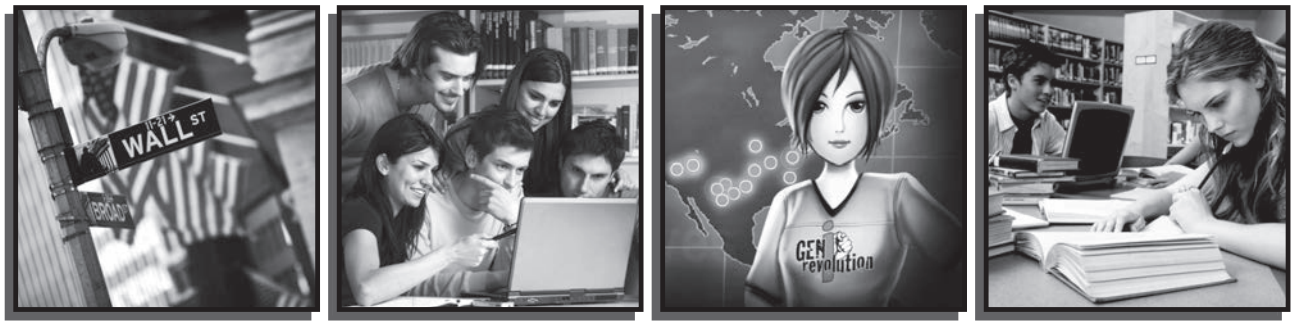
Lesson 1

Why Save?



Lesson 1
Why Save?

LESSON DESCRIPTION

Following an introduction that defines *saving*, the students discuss the idea of "paying yourself first" and the reasons why people save. After reporting on their small group discussions, the students simulate the accumulation of simple interest and compound interest. They conclude the lesson by calculating both simple interest and (using the Rule of 72) the amount of time it takes to double a saved amount when interest is compounded.

INTRODUCTION

Saving is disposable income minus consumption spending. For students, disposable income may come from allowances, gifts of money, payment for jobs done at home, or paychecks from a job. A paycheck stub shows how a job contributes to disposable income. The stub shows your pay before taxes, the amount subtracted for taxes, and the income you actually receive. Only this last amount contributes to disposable income. "Paying yourself first" means saving money before spending money on consumer goods. Reasons to save vary from person to person; they might include a promise that money saved will be matched by an adult (a parent or uncle, perhaps), the satisfaction of buying a special gift for someone in the future, or the desire to buy something for one's own use in the future. Simple interest is the annual interest paid on the initial amount saved (the principal). Compound interest is interest paid on both the principal and the interest added to the principal.

CONCEPTS

Compound interest

Consumption

Disposable income

Income

Principal

Rule of 72

Saving

Simple interest

OBJECTIVES

Students will be able to:

- Define *saving*.
- Identify reasons why people save.
- Distinguish between simple and compound interest.
- Apply the formula for calculating simple interest.
- Apply the Rule of 72 to determine how much time it takes for a saved amount to double.

CONTENT STANDARDS

***Voluntary National Content Standards in Economics*, 2nd Edition**

- **Standard 4:** People usually respond predictably to positive and negative incentives.
- **Standard 12:** Interest rates, adjusted for inflation, rise and fall to balance the amount saved with the amount borrowed, which affects the allocation of scarce resources between present and future uses.

***National Standards in K-12 Personal Finance Education*, 3rd Edition**

- **Financial Responsibility and Decision Making Standard 1:** Take responsibility for personal financial decisions.

- **Saving and Investing Standard 1:** Discuss how saving contributes to financial well-being.

TIME REQUIRED

45 minutes

MATERIALS

- Slides 1.1, 1.2, 1.3, and 1.4
- One copy of Activity 1.1 for each student

PROCEDURE

1. Tell the students that this lesson focuses on saving: what it is, why people save, and how interest is calculated on money saved. Many financial experts think that Americans save too little. Data on the U.S. personal saving rate, from the Bureau of Economic Analysis (BEA), can easily be graphed using the St. Louis Federal Reserve Bank's website called Federal Reserve Economic Data (FRED). Recent data show that Americans on average save less than five percent of their disposable income.
2. **Display Slide 1.1.** Explain that disposable income equals consumption plus saving. Point out that, for students, disposable income may come from allowances, gifts of money, payment for jobs done at home, or paychecks from a job. Explain that consumption is spending on goods and services. Define *saving* by explaining that saving equals disposable income minus consumption.
3. Organize the class into groups of about five students each. Ask each group to choose a reporter to take notes and report the group's work to the class.
4. **Distribute a copy of Activity 1.1** to each student. Ask the students to read Activity 1.1 and, in their groups, discuss the two questions posed at the end of the handout. Give the students about 15 minutes to read Activity 1.1 and conduct their discussions.
5. Call on the groups' reporters to report on each group's results. Discuss the **Questions for Discussion. Ask:**

   A. What do you think is meant by this statement: "Pay yourself first"?

   ("Pay yourself first" means that a person saves before spending money on goods and services.)

   B. What are some reasons why people save?

   (Reasons vary from person to person. They might include saving money to gain the satisfaction of purchasing a special gift, to make large purchases, to meet emergencies that might arise, to qualify for matching money, and to pay for a college education.)
6. Note that all saving decisions relate to some future use of money. Point out to the students that they should have their own reasons for saving. These reasons necessarily will derive from goals the students envision. Thinking about saving, in other words, involves thinking about goals.
7. **Display Slide 1.2** and explain the Simple Interest Adds column and the Compound Interest Adds column.
8. To illustrate the information provided on Slide 1.2, conduct the following simulation in your classroom. Ask one student to write "Principal = $100" on a sheet of paper large enough for everyone to see when he or she is standing in front of the class. Ask everyone else in the class to write "$100" on a sheet of paper (once again, large enough for all to see). Ask the student with the Principal sign to stand up in front of

the class. Ask the class to define the term *principal*, making the point that it represents the amount of money that is borrowed or saved.

9. Next tell the class that they will simulate how money grows under simple interest. Review columns two (Simple Interest Adds) and three (Total Saving Using Simple Interest) of Slide 1.2. **Display Slide 1.3** and explain that simple interest is calculated in each period by multiplying the interest rate by the principal. Tell the class that for simplicity you will use a 100 percent interest rate in this exercise. Ask the students how much simple interest would be earned after year one. The answer is $100. Continue this process for five years. At this point, there should be one student in front of the class holding the Principal sign and five students holding $100 signs. Make the point that, under simple interest, the initial principal of $100 has grown to $600.

10. Next tell the class that they will simulate how money grows under compound interest. Review columns four (Compound Interest Adds) and five (Total Saving Using Compound Interest) on Slide 1.2. Make the point that under compound interest the interest is calculated on both the principal and the interest earned in the account. Once again ask the student with the Principal sign to stand up in front of the class. Once again use a 100 percent interest rate. Ask the class how much compound interest will be earned in year one. The answer, once again, is $100. Continue to year two. This time two students will need to come to the front of the class to represent the $200 in compound interest earned on the $200 ($100 of principal and $100 of interest). Continue this process for year three (four students will come forward as the $400 becomes $800), year four (eight students will come forward as the $800 becomes $1,600), and year five (sixteen students come forward as the $1,600 becomes $3,200). *(Note: If your class is smaller than the 32 students required for this simulation, you can have each student make two signs.)*

11. Make the point that under the simple interest system, in five years the $100 in principal became $600. However, under the compound interest system, this same $100 in principal turned into $3,200. Explain that compound interest is really money that your money makes for you. One need not work longer hours or get a second job to earn this money.

12. The Rule of 72 provides an easy way to illustrate how compound interest works. **Display Slide 1.4,** "The Rule of 72." Explain that in using the Rule of 72 we divide 72 by the interest rate paid to determine how many years it will take for a saved amount to double when the interest is compounded. To apply this rule to the earlier example on Slide 1.2, divide 72 by eight percent and the result is nine years. This explains why Slide 1.2 shows the initial principal of $100 doubling in nine years when an eight percent interest rate was assumed. If the interest rate had been lower—for example, six percent—then it would have taken 12 years for the saved amount to double (72 divided by 6 = 12).

CLOSURE

13. Review the lesson. **Ask:**

    A. What is saving?

    (Saving is disposable income minus consumption. Remind the students that there are several reasons for saving, such as saving to make a large purchase, saving for emergencies, or saving to pay for a college education. Many reasons encourage many people to get an early start on saving.)

B. Pose a practice problem for use with the simple interest formula. The initial amount saved is $1,000; the interest rate is five percent. If you keep the initial $1,000 for five years, how much simple interest will be paid?

($1,000 x 5% = $50 per year x 5 years = $250)

C. Pose a practice problem for use with the Rule of 72. The initial amount saved is $500. At an interest rate of three percent, how long would it take to double that initial $500? What if the interest rate is six percent?

(72 divided by 3 = 24 years; 72 divided by 6 = 12 years)

ASSESSMENT

Multiple-Choice Questions

1. Which of the following is the best definition for *saving*?

   a. the discount received from buying something on sale
   b. disposable income minus consumption spending
   c. putting your money under your mattress
   d. the interest paid on a savings account

2. Which of the following is a reason to save?

   a. Your parents place a dollar into your savings account for every dollar you save.
   b. Your bank charges a penalty if you withdraw money from your account.
   c. The government collects high rates of taxes on interest received through saving.
   d. Having to go to the bank to make a purchase.

3. If you have $50 in a savings account for one year at an interest rate of 6 percent, how much interest will you earn at the end of the year?

   a. $5
   b. $4
   c. $3
   d. $2

4. If you divide the interest rate paid into 72, the result tells you how many years it will take for the amount initially saved to double if you receive compound interest. At a compound interest rate of 10 percent, how many years will it take to double your money?

   a. 2.7 years
   b. 7.2 years
   c. 7.0 years
   d. 10.0 years

Constructed-Response Items

1. Explain, in your own words, what the statement "Pay yourself first" means.

   (Paying yourself first means making saving a priority over spending. The decision on how much to save is made before the decision on how much to spend on consumption. Paying yourself first allows a person to more easily achieve goals for saving.)

2. A friend asks you what sort of interest—simple or compound—is better. What would your answer be, and why?

   (When savings are allowed to accumulate with simple interest, the total grows more slowly than it would grow with compound interest. The rule of 72 enables you to calculate how many years it will take for a saved amount to double if you receive compound interest. Compound interest generates dramatic growth over the long term.)

Gen i Connection

Mission 1 of the Gen i Revolution game enables students to gain experience with the topics of simple and compound interest illustrated in this lesson. The premise of the mission is that a young worker, Angela, needs help making decisions on her savings plan at work. Students work interactively through a 4-1-1 tutorial session focused on the difference between simple and compound interest, including the use of an online calculator to solve for interest earned and changes in savings account balances under different scenarios. (A second tutorial session, on three rules for building wealth, reinforces material from Lesson 9 of this book, "Building Wealth over the Long Term.") The mission's conclusion calls on students to recommend investment decisions to Angela and to calculate what difference the decisions will make in her accumulation of wealth over her lifetime.

Gen i Reflection

Mission 1 showed the advantages of "buy and hold" over frequently jumping in and out of the stock market. Think about your own future investing. By your nature, would you find it easy to buy and hold, or would you be inclined to buy and sell frequently? Explain your answer.

ACTIVITY 1.1
A CONVERSATION AMONG FRIENDS

Patrick, Matthew, Elizabeth, Benjamin, and Steph are talking about money. Their teacher, Ms. Greenberg, has asked them to think about saving money. Read their conversation. Then answer the **Questions for Discussion** *that follow.*

Patrick: Last week I bought this really cool basketball jersey for $50. The week before, the price had been $57. I saved $7.

Elizabeth: But Patrick, you spent $50. I don't think this is what Ms. Greenberg means by saving.

Matthew: I think Ms. Greenberg means that saving is not spending our money now.

Benjamin: Yeah, I think Matthew is right. But it is SO hard to save. I don't really have very much money. And I want a lot of stuff.

Steph: Well, my parents want me to save some of my allowance. They said that if I have $100 saved at the end of the year, they would add $100 to it.

Elizabeth: Wow, that's pretty generous. Are you going to do it?

Steph: I'm going to try. I started a savings account at the bank.

Matthew: I don't have a savings account, but I try not to spend all the money I have because I want to buy a nice Christmas present for my dad.

Patrick: I've heard that you get interest on money you put into a savings account at a bank. Is that right, Steph?

Steph: Yeah, I think so, but I don't know much about it.

Benjamin: I really do want a new bike, and my parents said I have to save my money for it. They won't buy it for me.

Elizabeth: I want an iPad, and my parents told me the same thing.

Patrick: I just don't know how I can save any money. There are too many things to spend my money on now. I don't know if I want to give up spending.

Matthew: You're right, Patrick. It's hard to give up spending, especially when we don't have much money just now.

Benjamin: I heard some guy on TV the other day say that people should pay themselves first. I wonder what he meant by this.

Questions for Discussion

In your small groups, choose a representative to take notes and report the results of your discussion to the class. Then discuss and record your responses to the following questions:

A. What do you think is meant by this statement: "Pay yourself first"?

B. What are some reasons why people save?

SLIDE 1.1

LESSON 1 - WHY SAVE?

Disposable Income and Saving

- Disposable income = consumption + saving
- Saving = disposable income – consumption

SLIDE 1.2

LESSON 1 - WHY SAVE?

Interest Earned on an Initial $100 Saved at 8% Interest Rate

Year	Simple Interest Adds	Total Saving Using Simple Interest	Compound Interest Adds	Total Saving Using Compound Interest
1	$8.00	$108.00	$8.00	$108.00
2	$8.00	$116.00	$9.00	$117.00
3	$8.00	$124.00	$9.00	$126.00
4	$8.00	$132.00	$10.00	$136.00
5	$8.00	$140.00	$11.00	$147.00
6	$8.00	$148.00	$12.00	$159.00
7	$8.00	$156.00	$12.00	$171.00
8	$8.00	$164.00	$14.00	$185.00
9	$8.00	$172.00	$15.00	$200.00

SLIDE 1.3

LESSON 1 - WHY SAVE?

Calculating Simple Interest

- Interest = Principal (amount of initial saving) x Rate (of interest being paid on savings) x Time (in years)
- Example: Simple Interest at 8% for 3 years
- Interest = ($100) x (0.08) x (3) = $24

SLIDE 1.4

LESSON 1 - WHY SAVE?

The Rule of 72

- The Rule of 72 is a simple way to illustrate the magic of compound interest.
- Rule of 72
  - 72 divided by the rate of interest = the number of years it will take for a saved amount to double when interest is allowed to compound.
  - The Rule of 72 illustrates how quickly compound interest can make saved amounts grow.
- Example: Compound Interest at 8% for 9 years
  - 72 divided by 8 = nine years
  - At the end of nine years, the initial saved amount of $100 has increased to $200—double the initial amount.