



# FINANCIAL LITERACY



(888) 242-0563  
www.izzit.org

Video Page



# *Financial Literacy*

## Teacher's Guide

### Contents

<b>Suggested Lesson Plan</b> .....	3
<b>Preview Questions</b> .....	4
<b>Key Terms</b> .....	5
<b>Viewing Guide</b> .....	7
<b>Viewing Guide Answer Key</b> .....	8
<b>Discussion Questions</b> .....	9
<b>Activities: Who Chooses?</b> .....	11
<b>Activity: What's Fair? Picking Who to Lend To</b> .....	12
<b>Activity: What's Fair? Picking Who to Lend To</b> .....	14
<b>Comprehension Quiz</b> .....	15
<b>Quiz Answer Key</b> .....	17
<b>Goal Setting</b> .....	18
<b>Worksheet - Budget Planning</b> .....	19
<b>Worksheets - Compound Interest &amp; Time Value of Money</b> .....	21
<b>ANSWER KEY - Worksheets Compound Interest &amp; Time Value of Money</b> .....	30

# *Financial Literacy*

## **Suggested Lesson Plan**

*These materials may be used in a variety of ways. For maximum benefit, we suggest the following lesson plan:*

- As a class, discuss the Preview Questions and Key Terms.
- Show your class the website, USdebtclock (<https://usdebtclock.org>). Go to the “Unfunded Debt/Interest” section and look at student loan debt and credit card debt. Ask the students to consider why Americans are so in debt, not just nationally, but individually.
- Distribute copies of the Viewing Guide for students to use as a note-taking tool during the video.
- Play the video, pausing if needed to facilitate understanding and note-taking.
- Review and discuss the answers to the Viewing Guide using Answer Key as a guide.
- Use Discussion Questions to spark class discussion or assign these questions as homework. Feel free to pick and choose among the questions.
- Select from the Enrichment Activities.
- Replay the video (if needed) as preparation for the quiz.
- Administer and grade the quiz using Answer Key as a guide or use the online quiz version for immediate feedback.
- Optional: Assign one or more Activities or Worksheets as homework.

*For a list of additional resources for use with this video, go to [www.izzit.org/products](http://www.izzit.org/products) and navigate to **Financial Literacy's** page.*

# *Financial Literacy*

## **Preview Questions**

1. How comfortable are you discussing finances? Do you know much about how to be financially successful?
2. Do you have any financial goals? If so, are you willing to share them?
3. Do you currently earn money? Do you have a bank account? If not, why not?
4. Can people be financially secure without making a lot of money? How?

# *Financial Literacy*

## **Key Terms**

**Assets:** Things you own that have monetary value, typically things that don't decrease in value, like a house. A car can be an asset, but it does decrease in value over time.

**Compound Interest:** Interest calculated on the principal amount and also on the accumulated interest of previous periods. It can thus be regarded as "interest on interest."

**Debilitating:** Weakening something, hurtful

**Diversification:** Not "putting all your eggs in one basket," investing in a variety of companies or formats to reduce the risk of a single investment doing badly

**Equity:** Value of something after deducting the liabilities associated with it (Example: the value of a house above and beyond the loan on it. If the house is worth \$200,000 and the loan on it is \$150,000, there is \$50,000 worth of equity in the house.)

**ETFs/ Exchange Traded Funds:** These investment options are linked to an index or pool of assets, providing more diversification than single stocks. At the same time, they can be bought and sold on the stock market, unlike index funds.

**Exasperation:** Intense irritation or annoyance

**Expansion:** A time of economic increase when trade and industrial activity rise

**Expenditures:** Money spent, money going "out"

**Exploit:** Take advantage of, make full use of and gain benefits from something

**Fixed Costs/Fixed Expenses:** Expenses that remain constant from month to month. Some, like rent or a mortgage, may be exactly the same. This video includes consistent expenses that may vary from month to month, such as utility bills.

**Index Fund:** An index fund is a type of mutual fund with a portfolio constructed to match or track the components of a financial market index, such as the Standard & Poor's 500 Index (S&P 500). An index mutual fund provides diversity and low expenses.

**Investment Portfolio:** A "basket" of diverse assets that can include stocks, bonds, cash, and more.

**Law of Comparative Advantage:** The ability to produce something at a lower cost than someone else, an advantage to the producer.

**Leverage:** To use something to maximum advantage

**Liabilities:** Debts, things that you owe

**Mortgage:** A legal agreement wherein a bank or other lender loans money at a given interest rate in exchange for holding the title to the property until the loan is paid off

**Mutual Fund:** A form of investment that pools money from lots of different investors; a manager then invests in many different securities (stocks or bonds) with that combined money. They provide diversity without requiring a lot of attention from individual investors.

**Rate of Return (RoR):** The net gain or loss on an investment over a specified time period, expressed as a percentage of the investment's initial cost.

**Recession:** A time of economic decline during which trade and industrial activity are reduced

**The Rule of 72:** A simple way to determine how long an investment will take to double given a fixed annual rate of interest. By dividing **72** by the annual rate of return, investors obtain a rough estimate of how many years it will take for the initial investment to duplicate itself.

**Volatile:** Unpredictable, prone to rapid and large changes.

# *Financial Literacy*

## **Viewing Guide**

What questions should a young person be asking himself or herself about work? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Fill in the blanks: “Remember, in the real world you don’t get paid for \_\_\_\_\_, but rather when you create \_\_\_\_\_ for \_\_\_\_\_.”

What is the one skill Mr. Bahnsen says he would most want to teach young people? \_\_\_\_\_  
\_\_\_\_\_

One way to think through a budget is the \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Rule. What do those numbers represent?

Why does Mr. Bahnsen think that even high schoolers with a part-time job should start saving? \_\_\_\_\_  
\_\_\_\_\_

The video encourages you to save regularly for \_\_\_\_\_.

Why should you have a diversified financial plan? \_\_\_\_\_  
\_\_\_\_\_

The stock market is a good choice if your financial goals are \_\_\_\_\_.

The average real rate of return for stockholders over the last several decades has averaged \_\_\_\_\_%.

Mr. Bahnsen says credit can be good when you are buying \_\_\_\_\_ but bad when you are \_\_\_\_\_.

One of the greatest blessings a young person can give himself is the avoidance of \_\_\_\_\_.

Fill in the blank: The worst ramifications of excessive debt have always been \_\_\_\_\_.

It takes \_\_\_\_\_ and \_\_\_\_\_ to build a good financial plan and stick to it, building financial security.

# *Financial Literacy*

## **Viewing Guide Answer Key**

What questions should a young person be asking himself or herself about work? *How can I make myself more valuable? How can I do my job better?*

Fill in the blanks: “Remember, in the real world you don’t get paid for \_\_\_\_\_, but rather when you create \_\_\_\_\_ for \_\_\_\_\_.” (*effort/value/others*)

What is the one skill Mr. Bahnsen says he would most want to teach young people? *Learning to construct a budget*

One way to think through a budget is the \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Rule. What do those numbers represent? (*50- fixed costs; 30- debt and/or savings; 20- entertainment/enjoyment*)

Why does Mr. Bahnsen think that even high schoolers with a part-time job should start saving? *He believes it’s important to start the habit of saving*

The video encourages you to save regularly for \_\_\_\_\_ . (*unexpected expenditures*)

Why should you have a diversified financial plan? (*to avoid putting all your eggs in one basket – if one asset is down, others will likely be up*)

The stock market is a good choice if your financial goals are \_\_\_\_\_ . (*long term*)

The average real rate of return for stockholders over the last several decades has averaged \_\_\_\_\_ % . (*seven*)

Mr. Bahnsen says credit can be good when you are buying \_\_\_\_\_ but bad when you are \_\_\_\_\_ . (*assets/consuming*)

One of the greatest blessings a young person can give himself is the avoidance of \_\_\_\_\_ . (*credit card debt*)

Fill in the blank: The worst ramifications of excessive debt have always been \_\_\_\_\_ . (*emotional*)

It takes \_\_\_\_\_ and \_\_\_\_\_ to build a good financial plan and stick to it, building financial security. (*education/sacrifice OR planning/commitment*)



# *Financial Literacy*

## **Discussion Questions**

1. There's an old saying that goes, "Failing to plan is planning to fail." How does that apply to this video?
2. What are reasonable financial goals for teenagers?
3. What is the hardest part about creating and sticking to a budget?
4. Do you think the 50/30/20 rule is appropriate? Why or why not?
5. Why is it important to start saving early?
6. Assuming you're still living with your parents, and thus don't have many "fixed expenses" like rent or food, how might you adjust your plan? What is a reasonable goal for saving?
7. The video suggests that you can maximize your earnings by budgeting. What does that mean?
8. What is the relationship between risk and reward in terms of investing? How much risk are you willing to take?
9. What is the risk of NOT saving and investing?
10. Do you have a credit card? What was Mr. Bahnsen's guidance for how to use one?
11. Why do you think credit card companies offer free gifts to college students who sign up for a card?
12. Why is it very different to borrow money to purchase an asset (like a house) versus borrowing money to buy pizza, clothes, vacations – consumable items that will be gone or used up before you pay the debt?
13. Why does Mr. Bahnsen say that staying out of credit card debt is the best gift a young person (or ANY person, for that matter) can give themselves?
14. If compound interest and the time value of money can work for you in investments, how can it work against you in debt, like with credit card debt?

15. Mr. Bahnsen says the worst part of not planning your finances is the emotional toll (stress) it puts on people and families. Why do you think that is?
16. Mr. Bahnsen says, "Most people don't need an education to know how to buy more pizza or go out with their friends, but it takes an education, and it takes sacrifice, character traits, if one's going to really learn the practice of saving, goal setting, budgeting..." What might you have to give up or sacrifice in order to save? Will those sacrifices be worth it? Why or why not?
17. Delayed gratification means waiting for a reward. If you buy the pizza now, and go out with friends now, especially if you have to buy them on a credit card because you don't have the money, that's instant gratification. If you choose to wait, save your money, and then use it to buy an asset, you're waiting for a delayed reward that comes later. Are you able to wait for a reward? Why or why not? How will that impact your finances?

## *Financial Literacy*

### **Activities: Who Chooses?**

The Book of Proverbs tells us, “The borrower is a slave to the lender.” Mr. Bahnsen told us the importance of limiting our liabilities. In other words, borrowing for immediate gratification places us under obligation to those who lent us the money.

Those who *lend* (or invest) give up immediate wants for long-term gain.

Those who *borrow* give up long-term gains for short-term benefit.

Let’s take a look at how using a credit card can cost you a huge amount.

Display this website: <https://www.consumercredit.com/financial-education/financial-calculators/credit-card-interest-calculator>

For a first test, enter \$500 for the dollar amount charged, with an 18% APR, a minimum payment percent of 2% and a minimum payment of \$15. Before you hit ‘Compute,’ have the students predict how much they will pay in interest and how long it will take to pay. Then show the results. Repeat the process with \$1000 borrowed.

Discuss these questions:

1. Who chooses how to spend the nearly \$200 you paid in interest in the first example? (The lender)
2. How could you maintain control of that money for yourself? (Saving up the money and paying cash for what you bought.)
3. What do young people buy on credit that fit into ‘wants’ as opposed to ‘needs’?
4. How can a budget help people avoid debt?

## *Financial Literacy*

### **Activity: What's Fair? Picking Who to Lend To**

Time: 30 minutes (Can be done as a homework exercise)

Procedure:

After looking at the previous exercise, remind students that credit cards can charge 18% or more. Ask students if they think that's a fair rate. Why or why not?

Ask, "What would happen if the government set a maximum interest rate companies could charge?"

After the class discusses this for a while, provide this scenario on a handout (or on the board):

*You have been careful to save some of your earnings from your part-time job. Now prom is coming up, and you know you have enough for your date. Two of your friends, however, don't have enough, and they approach you for a loan of \$100. Each says he's willing to pay you back with interest for the help.*

*Rick has a job, but his car recently needed a new alternator, and that took his savings. You know that he is generally careful with his money.*

*Ted is a great guy, but any time he has money, he spends it quickly. He has been let go from two jobs because he wouldn't show up on time.*

*Assuming you're willing to lend the money, which friend would you be more likely to lend the money to? Why? If you were willing to lend to both, would you offer an equal rate of interest to each?*

Divide class into small groups to discuss the appropriate response to these requests.

There's an old financial rule: The higher the risk, the higher the potential reward should be. Which of these two boys is the higher risk? Why might a lender ask for a lower rate of interest from Rick than from Ted? Is that fair?

The federal government did pass legislation that tried to help poor people by limiting what credit card companies could charge. John Stossel evaluates the result in this NewsMax article:

<https://www.newsmax.com/Stossel/creditcardact-CARD-Obama-reforms/2010/12/29/id/381334/>

For a homework assignment, print and use the following page. (You may want to copy and print the Stossel article as well):

## *Financial Literacy*

### **Activity: What's Fair? Picking Who to Lend To**

Name: \_\_\_\_\_

*You have been careful to save some of your earnings from your part-time job. Now prom is coming up, and you know you have enough for your date. Two of your friends, however, don't have enough, and they approach you for a loan of \$100. Each says he's willing to pay you back with interest for the help.*

*Rick has a job, but his car recently needed a new alternator, and that took his savings. You know that he is generally careful with his money.*

*Ted is a great guy, but any time he has money, he spends it quickly. He has been let go from two jobs because he wouldn't show up on time.*

*Assuming you're willing to lend the money, which friend would you be more likely to lend the money to? Why? If you were willing to lend to both, would you offer an equal rate of interest to each?*

Write your thoughts on the lines below.

---

---

---

Should the government limit what companies can charge as interest? Why or why not?

---

---

Read the attached article (<https://www.newsmax.com/Stossel/creditcardact-CARD-Obama-reforms/2010/12/29/id/381334/>) to learn the results when the government did try to limit what credit card companies could charge. Then write a paragraph with this topic sentence: *The government (should/ should not) limit what interest companies can charge for loaning money.*

Name: \_\_\_\_\_

Date \_\_\_\_\_

## *Financial Literacy* **Comprehension Quiz**

Circle the best answer.

1. Perhaps the most fundamental financial literacy skill is
  - a. Investing
  - b. Budgeting
  - c. Earning
  - d. Saving
  
2. What is the key idea to remember about getting paid?
  - a. The harder you work, the more you get paid
  - b. Employers care most about your effort
  - c. You get paid for creating value for others
  - d. Education is the most important factor
  
3. Why should young people save?
  - a. For car maintenance and repairs
  - b. For unexpected illnesses
  - c. For a future large purchase
  - d. All of the above
  
4. The best way for someone without a lot of money to invest is to
  - a. Watch the news for hot stocks
  - b. Choose investments with minimal risks, like savings accounts
  - c. Buy bonds instead of stocks
  - d. Select an index or mutual fund

5. The stock market is good for what kinds of goals?
- Long-term, like retirement
  - Intermediate-term, like a down payment on a house in 3 years
  - Short-term, like next month's rent
  - All of the above
6. Albert Einstein is credited with saying that the most powerful force in the universe is
- Relativity
  - Compound interest
  - Human ingenuity
  - Nuclear power
7. What is one way everyone can increase his or her quality of life?
- Getting an expensive education
  - Using credit to buy things now and not wait
  - Actively manage one's finances
  - Use all of one's money for needs and investment, not wants
8. Mr. Bahnsen says the difference between investing at age 50 vs. age 25 for many middle-class families can be \_\_\_\_\_.
- Hundreds of dollars
  - Thousands of dollars
  - Hundreds of thousands of dollars
  - Millions of dollars
9. What does Mr. Bahnsen say are the worst ramifications of excessive debt?
- The loss of hope to get ahead
  - The loss of investment opportunities
  - The inability to retire
  - The inability to buy new things
10. True or False? (Circle one) Mr. Bahnsen encourages young people to completely avoid using credit.



## *Financial Literacy* **Quiz Answer Key**

1. B
2. C
3. D
4. D
5. A
6. B
7. C
8. C
9. A
10. False

# *Financial Literacy*

## Goal Setting

Creating a financial plan is most helpful when someone has goals in mind. Some goals, however, are too vague to be useful. Help students create SMART goals (specific, measurable, attainable, realistic, time-bound) with this exercise.

**Materials Needed:** index cards, (optional: SMART Goal visual aid, A/V equipment)

**Time Needed:** 2 days

Procedures:

### DAY ONE

1. Prior to the exercise, create some notecards as described in #5 below.
2. After the video, ask students for the main idea. They should be able to recognize that financial security involves careful planning and discipline.
3. Tell the students that you are going to help them set goals for their own financial planning.
4. Hand out 2-3 notecards to each student. Ask them to write some goals they believe they should set for themselves. (No names)
5. Collect the notecards. Have a few already prepared with these goals: “Become rich.” “Spend less money.” “Be a millionaire by the time I’m 25.”
6. Introduce the idea of SMART goals. (If you would like a visual aid, a Google image search for ‘SMART goals’ provides abundant choices.) Discuss what each term means.
7. Read a few of the notecards aloud. Have students decide if the goals are SMART or not; if not, how could they be modified to fit the standard?
8. For homework, have the students create 3 goals: one short-term (within 3 months), one intermediate-term (3-12 months), and one long-term (more than 1 year).

### DAY TWO

1. After checking for the students’ goals, pair students to discuss their goals. Ask them to create a PLAN for achieving *one* of the intermediate- or long-term goals.
2. Challenge them to consider obstacles they may need to overcome in pursuit of their goal. How can they overcome those obstacles?
3. Have pairs present their plans to the rest of the class. Discuss ways to improve the plans.
4. Optional: Ask if SMART goals can apply to educational planning as well. What are some SMART goals for their education?

# *Financial Literacy*

## **Worksheet - Budget Planning**

Name \_\_\_\_\_

Budgeting is a key skill for financial security. This exercise will help you think through some of the challenges of creating a good budget; it may also serve as a template for when you are living on your own.

Discuss with your teacher what an appropriate starting-level salary is in your region or town. (You may also research an area where you'd like to live.) Use that number to work through the exercise below. Remember taxes when you calculate take-home pay!

This will be more accurate if you do some research as well about the cost of living in your chosen area, particularly housing costs.

Monthly (take-home) pay: \_\_\_\_\_

Apply the 50/30/20 rule. How much should go toward fixed costs like housing?

\_\_\_\_\_ How much should be put in savings or toward debt payments?

\_\_\_\_\_ How much do you have left for 'wants,' or discretionary spending?

### FIXED COSTS

Mortgage/Rent \_\_\_\_\_

Utilities (gas, electric) \_\_\_\_\_

Phone/internet/TV \_\_\_\_\_

Gas \_\_\_\_\_

Groceries \_\_\_\_\_

Clothing \_\_\_\_\_

Charitable Giving \_\_\_\_\_

Other \_\_\_\_\_

TOTAL \_\_\_\_\_ *Does this match the amount above? If not, what can you adjust?*

SAVINGS/PLANNING

Emergency Fund \_\_\_\_\_

Car repair/maintenance \_\_\_\_\_

Insurance \_\_\_\_\_

Doctor visits (co-pays) \_\_\_\_\_

Retirement \_\_\_\_\_

Debt service\* \_\_\_\_\_ *\*If you have no debts, this can be empty*

Other \_\_\_\_\_

TOTAL \_\_\_\_\_ *Does this match the amount above?*

ENTERTAINMENT (WANTS)

Dining out/movies/etc. \_\_\_\_\_

Hobbies \_\_\_\_\_

Other: \_\_\_\_\_ Amount \_\_\_\_\_

Other: \_\_\_\_\_ Amount \_\_\_\_\_

*Other might include pet care, gifts, subscriptions. Think about how you spend money.*

TOTAL \_\_\_\_\_ *Does this match the goal above? What can you adjust?*

If the numbers don't work, you have two choices: increase your income or reduce your expenses. Or some of each.

How could you increase your income?

How could you reduce living expenses?

How does debt affect your budget?

Name \_\_\_\_\_

## Worksheets - Compound Interest & Time Value of Money

Mr. Bahnsen argues that investing early can make a difference of hundreds of thousands of dollars. We will test that argument by looking at two hypothetical investors. Each will invest \$50,000, but Mr. A will begin investing early, taking advantage of compound interest, while Ms. B will wait until later when she feels more financially secure.

### Mr. A

Mr. A begins investing \$2500/year at age 22, when he gets his first real job. He invests for 20 years; then he stops.

We will assume a 7% average annual return. Calculate the earnings by multiplying the new balance each year by 1.07.

\*New balance is previous year's account plus new investment

\*\*Principal + Interest is found by multiplying the new balance by 1.07

Mr. A - Invests \$50,000 total, starting age 22, stops at age 41

Age	Investment	New Balance	P & I
22	\$2,500.00	\$2,500.00	\$2,675.00
23	\$2,500.00	\$5,175.00	\$5,537.25
24	\$2,500.00		
25	\$2,500.00		
26	\$2,500.00		
27	\$2,500.00		
28	\$2,500.00		
29	\$2,500.00		
30	\$2,500.00		
31	\$2,500.00		

32	\$2,500.00		
33	\$2,500.00		
34	\$2,500.00		
35	\$2,500.00		
36	\$2,500.00		
37	\$2,500.00		
38	\$2,500.00		
39	\$2,500.00		
40	\$2,500.00		
41	\$2,500.00		
42	\$0		
43	\$0		
44	\$0		
45	\$0		
46	\$0		
47	\$0		
48	\$0		
49	\$0		
50	\$0		
51	\$0		
52	\$0		
53	\$0		
54	\$0		
55	\$0		
56	\$0		
57	\$0		
58	\$0		
59	\$0		
60	\$0		
61	\$0		
62	\$0		
63	\$0		
64	\$0		
65	\$0		

Total Investment      \$ \_\_\_\_\_

How much does Mr. A invest in total? (This is the principal.)

\_\_\_\_\_

How many years does he invest? \_\_\_\_\_

Where does all the other money come from? \_\_\_\_\_

How much money has his investment earned over the years?

\_\_\_\_\_

How much does Mr. A have at age 65, even though he stopped investing money at age 41? \_\_\_\_\_

In this next example, Mr. A begins investing at age 22 and continues to invest \$2,500 a year, each year, until he turns 65.

### Compound Interest & Time Value of Money

Mr. A - Invests \$2,500 annually from age 22 - 65

Age	Investment	New Balance	P & I
22	\$2,500.00	\$2,500.00	\$2,675.00
23	\$2,500.00	\$5,175.00	\$5,537.25
24	\$2,500.00		
25	\$2,500.00		
26	\$2,500.00		
27	\$2,500.00		
28	\$2,500.00		
29	\$2,500.00		
30	\$2,500.00		
31	\$2,500.00		
32	\$2,500.00		
33	\$2,500.00		
34	\$2,500.00		

35	\$2,500.00		
36	\$2,500.00		
37	\$2,500.00		
38	\$2,500.00		
39	\$2,500.00		
40	\$2,500.00		
41	\$2,500.00		
42	\$2,500.00		
43	\$2,500.00		
44	\$2,500.00		
45	\$2,500.00		
46	\$2,500.00		
47	\$2,500.00		
48	\$2,500.00		
49	\$2,500.00		
50	\$2,500.00		
51	\$2,500.00		
52	\$2,500.00		
53	\$2,500.00		
54	\$2,500.00		
55	\$2,500.00		
56	\$2,500.00		
57	\$2,500.00		
58	\$2,500.00		
59	\$2,500.00		
60	\$2,500.00		
61	\$2,500.00		
62	\$2,500.00		
63	\$2,500.00		
64	\$2,500.00		
65	\$2,500.00		

Total Investment \_\_\_\_\_

In this example, Mr. A continues to invest \$2,500 every year, beginning at age 22 until he turns 65. Rate of return remains the same, 7% each year.



How much is his principal investment? \_\_\_\_\_

How many years does he invest? \_\_\_\_\_

How much has his money earned over these years? \_\_\_\_\_

How much more money does Mr. A. have at 65 in this example than he does in the first example, where he only invests from age 22-41? \_\_\_\_\_

## Ms. B

Ms. B thinks she can't afford to invest when she's just beginning her career; therefore, she waits until she's more established. When she turns 40, though, she realizes that it's time. Now making more money, she is able to invest \$5000/year, which she does for 10 years.

She, like Mr. B, invests a total of \$50,000, earning a 7% annual rate of return.

### Compound Interest & Time Value of Money

Ms. B - Invests \$50,000 total, starting age 40, stops at age 49

Age	Investment	New Balance	P + I
40	\$5,000.00	\$5,000.00	\$5,350.00
41	\$5,000.00		
42	\$5,000.00		
43	\$5,000.00		
44	\$5,000.00		
45	\$5,000.00		
46	\$5,000.00		
47	\$5,000.00		
48	\$5,000.00		
49	\$5,000.00		
50	\$0		
51	\$0		
52	\$0		
53	\$0		
54	\$0		
55	\$0		
56	\$0		

57	\$0		
58	\$0		
59	\$0		
60	\$0		
61	\$0		
62	\$0		
63	\$0		
64	\$0		
65	\$0		

Total Investment            \$50,000.00

How many years does she invest? \_\_\_\_\_

How much does Ms. B's money earn above her principal? \_\_\_\_\_

Who has more money from their \$50,000 investment, Mr. A or Ms. B? \_\_\_\_\_

Why? \_\_\_\_\_

**In this next example,** Ms. B continues to invest \$5,000 a year, from age 40 – 65.

**Compound Interest & Time Value of Money**

Ms. B - Invests \$5,000 annually from age 40-65

Age	Investment	New Balance	P + I
40	\$5,000.00	\$5,000.00	\$5,350.00
41	\$5,000.00		
42	\$5,000.00		
43	\$5,000.00		
44	\$5,000.00		
45	\$5,000.00		
46	\$5,000.00		
47	\$5,000.00		
48	\$5,000.00		
49	\$5,000.00		
50	\$5,000.00		
51	\$5,000.00		
52	\$5,000.00		

53	\$5,000.00		
54	\$5,000.00		
55	\$5,000.00		
56	\$5,000.00		
57	\$5,000.00		
58	\$5,000.00		
59	\$5,000.00		
60	\$5,000.00		
61	\$5,000.00		
62	\$5,000.00		
63	\$5,000.00		
64	\$5,000.00		
65	\$5,000.00		

Total Investment \_\_\_\_\_

How much does her money make over these years? \_\_\_\_\_

How much more money did Ms. B invest in this example than she did when she stopped investing at age 49? \_\_\_\_\_

How much more money does Ms. B have at age 65 in this example than she did when she stopped investing at age 49? \_\_\_\_\_

How much of that additional money is principal? \_\_\_\_\_

How much of that additional money is interest? \_\_\_\_\_

So is her additional money more principal or interest? \_\_\_\_\_

Why? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**In this next example**, Ms. B postpones savings for an additional 10 years, and doesn't begin saving until she turns 50. She invests \$5,000 per year, from age 50 – 65.



**Compound Interest & Time Value of Money**

Ms. B - Invests \$5,000 annually from age 50-65

Age	Investment	New Balance	P + I
50	\$5,000.00	\$5,000.00	\$5,350.00
51	\$5,000.00		
52	\$5,000.00		
53	\$5,000.00		
54	\$5,000.00		
55	\$5,000.00		
56	\$5,000.00		
57	\$5,000.00		
58	\$5,000.00		
59	\$5,000.00		
60	\$5,000.00		
61	\$5,000.00		
62	\$5,000.00		
63	\$5,000.00		
64	\$5,000.00		
65	\$5,000.00		

Total Investment \_\_\_\_\_

How much money does Ms. B end up with at age 65 in this example? \_\_\_\_\_

How much interest has her money earned over these years? \_\_\_\_\_

How much less money does she have in this example than in her first investing example? \_\_\_\_\_

How much less money does she have in this example than in her second investing example? \_\_\_\_\_

What is working against Ms. B? \_\_\_\_\_

Which plan would you recommend to Ms. B? \_\_\_\_\_

Based on these examples, what have you learned about saving for retirement? (or savings in general.) What would you recommend to yourself, your friends, or your family?

---

---

---

---

---

---

---

---

# ANSWER KEY - Worksheets Compound Interest & Time Value of Money

Mr. A - Invests \$50,000 total, starting age 22, stops at age 41

Age	Investment	New Balance	P & I
22	\$2,500.00	\$2,500.00	\$2,675.00
23	\$2,500.00	\$5,175.00	\$5,537.25
24	\$2,500.00	\$8,037.25	\$8,599.86
25	\$2,500.00	\$11,099.86	\$11,876.85
26	\$2,500.00	\$14,376.85	\$15,383.23
27	\$2,500.00	\$17,883.23	\$19,135.05
28	\$2,500.00	\$21,635.05	\$23,149.51
29	\$2,500.00	\$25,649.51	\$27,444.97
30	\$2,500.00	\$29,944.97	\$32,041.12
31	\$2,500.00	\$34,541.12	\$36,959.00
32	\$2,500.00	\$39,459.00	\$42,221.13
33	\$2,500.00	\$44,721.13	\$47,851.61
34	\$2,500.00	\$50,351.61	\$53,876.22
35	\$2,500.00	\$56,376.22	\$60,322.56
36	\$2,500.00	\$62,822.56	\$67,220.13
37	\$2,500.00	\$69,720.13	\$74,600.54
38	\$2,500.00	\$77,100.54	\$82,497.58
39	\$2,500.00	\$84,997.58	\$90,947.41
40	\$2,500.00	\$93,447.41	\$99,988.73
41	\$2,500.00	\$102,488.73	\$109,662.94
42	\$0	\$109,662.94	\$117,339.35
43	\$0	\$117,339.35	\$125,553.10
44	\$0	\$125,553.10	\$134,341.82
45	\$0	\$134,341.82	\$143,745.75
46	\$0	\$143,745.75	\$153,807.95
47	\$0	\$153,807.95	\$164,574.51
48	\$0	\$164,574.51	\$176,094.72
49	\$0	\$176,094.72	\$188,421.35
50	\$0	\$188,421.35	\$201,610.85
51	\$0	\$201,610.85	\$215,723.61

52	\$0	\$215,723.61	\$230,824.26
53	\$0	\$230,824.26	\$246,981.96
54	\$0	\$246,981.96	\$264,270.69
55	\$0	\$264,270.69	\$282,769.64
56	\$0	\$282,769.64	\$302,563.52
57	\$0	\$302,563.52	\$323,742.96
58	\$0	\$323,742.96	\$346,404.97
59	\$0	\$346,404.97	\$370,653.32
60	\$0	\$370,653.32	\$396,599.05
61	\$0	\$396,599.05	\$424,360.98
62	\$0	\$424,360.98	\$454,066.25
63	\$0	\$454,066.25	\$485,850.89
64	\$0	\$485,850.89	\$519,860.45
65	\$0	\$519,860.45	\$556,250.68

Total Investment            \$50,000.00

How much does Mr. A invest in total? (This is the principal.)

\$50,000

How many years does he invest? 20 years

Where does all the other money come from? Interest (or what his money earns)

How much money has his investment earned over the years?

\$506,250.68

How much does Mr. A have at age 65, even though he stopped investing money at age 41? \$556,250.68

**In this next example**, Mr. A begins investing at age 22 and continues to invest \$2,500 a year, each year, until he turns 65.

## Compound Interest & Time Value of Money

Mr. A - Invests \$2,500 annually from age 22 - 65

Age	Investment	New Balance	P & I
22	\$2,500.00	\$2,500.00	\$2,675.00
23	\$2,500.00	\$5,175.00	\$5,537.25
24	\$2,500.00	\$8,037.25	\$8,599.86
25	\$2,500.00	\$11,099.86	\$11,876.85
26	\$2,500.00	\$14,376.85	\$15,383.23
27	\$2,500.00	\$17,883.23	\$19,135.05
28	\$2,500.00	\$21,635.05	\$23,149.51
29	\$2,500.00	\$25,649.51	\$27,444.97
30	\$2,500.00	\$29,944.97	\$32,041.12
31	\$2,500.00	\$34,541.12	\$36,959.00
32	\$2,500.00	\$39,459.00	\$42,221.13
33	\$2,500.00	\$44,721.13	\$47,851.61
34	\$2,500.00	\$50,351.61	\$53,876.22
35	\$2,500.00	\$56,376.22	\$60,322.56
36	\$2,500.00	\$62,822.56	\$67,220.13
37	\$2,500.00	\$69,720.13	\$74,600.54
38	\$2,500.00	\$77,100.54	\$82,497.58
39	\$2,500.00	\$84,997.58	\$90,947.41
40	\$2,500.00	\$93,447.41	\$99,988.73
41	\$2,500.00	\$102,488.73	\$109,662.94
42	\$2,500.00	\$112,162.94	\$120,014.35
43	\$2,500.00	\$122,514.35	\$131,090.35
44	\$2,500.00	\$133,590.35	\$142,941.68
45	\$2,500.00	\$145,441.68	\$155,622.59
46	\$2,500.00	\$158,122.59	\$169,191.18
47	\$2,500.00	\$171,691.18	\$183,709.56
48	\$2,500.00	\$186,209.56	\$199,244.23
49	\$2,500.00	\$201,744.23	\$215,866.32
50	\$2,500.00	\$218,366.32	\$233,651.97
51	\$2,500.00	\$236,151.97	\$252,682.60
52	\$2,500.00	\$255,182.60	\$273,045.39
53	\$2,500.00	\$275,545.39	\$294,833.56



54	\$2,500.00	\$297,333.56	\$318,146.91
55	\$2,500.00	\$320,646.91	\$343,092.20
56	\$2,500.00	\$345,592.20	\$369,783.65
57	\$2,500.00	\$372,283.65	\$398,343.51
58	\$2,500.00	\$400,843.51	\$428,902.55
59	\$2,500.00	\$431,402.55	\$461,600.73
60	\$2,500.00	\$464,100.73	\$496,587.78
61	\$2,500.00	\$499,087.78	\$534,023.92
62	\$2,500.00	\$536,523.92	\$574,080.60
63	\$2,500.00	\$576,580.60	\$616,941.24
64	\$2,500.00	\$619,441.24	\$662,802.13
65	\$2,500.00	\$665,302.13	\$711,873.28

Total Investment            \$110,000.00

In this example, Mr. A continues to invest \$2,500 every year, beginning at age 22 until he turns 65. Rate of return remains the same, 7% each year.

How much is his principal investment? \$110,000

How many years does he invest? 44 years

How much has his money earned over these years? \$601,873.28

How much more money does Mr. A have at 65 in this example than he does in the first example, where he only invests from age 22-41? \$155,622.60

## **Ms. B**

Ms. B thinks she can't afford to invest when she's just beginning her career; therefore, she waits until he's more established. When she turns 40, though, she realizes that it's time. Now making more money, she is able to invest \$5000/year, which she does for 10 years.

She, like Mr. A, invests a total of \$50,000, earning a 7% annual rate of return

## Compound Interest & Time Value of Money

Ms. B - Invests \$50,000 total, starting age 40, stops at age 49

Age	Investment	New Balance	P + I
40	\$5,000.00	\$5,000.00	\$5,350.00
41	\$5,000.00	\$10,350.00	\$11,074.50
42	\$5,000.00	\$16,074.50	\$17,199.72
43	\$5,000.00	\$22,199.72	\$23,753.70
44	\$5,000.00	\$28,753.70	\$30,766.45
45	\$5,000.00	\$35,766.45	\$38,270.11
46	\$5,000.00	\$43,270.11	\$46,299.01
47	\$5,000.00	\$51,299.01	\$54,889.94
48	\$5,000.00	\$59,889.94	\$64,082.24
49	\$5,000.00	\$69,082.24	\$73,918.00
50	\$0	\$73,918.00	\$79,092.26
51	\$0	\$79,092.26	\$84,628.71
52	\$0	\$84,628.71	\$90,552.72
53	\$0	\$90,552.72	\$96,891.42
54	\$0	\$96,891.42	\$103,673.81
55	\$0	\$103,673.81	\$110,930.98
56	\$0	\$110,930.98	\$118,696.15
57	\$0	\$118,696.15	\$127,004.88
58	\$0	\$127,004.88	\$135,895.22
59	\$0	\$135,895.22	\$145,407.89
60	\$0	\$145,407.89	\$155,586.44
61	\$0	\$155,586.44	\$166,477.49
62	\$0	\$166,477.49	\$178,130.91
63	\$0	\$178,130.91	\$190,600.08
64	\$0	\$190,600.08	\$203,942.08
65	\$0	\$203,942.08	\$218,218.03

Total Investment      \$50,000.00

How many years does she invest? 10 years

How much does Ms. B's money earn above her principal? \$168,218.03

Who has more money from their \$50,000 investment, Mr. A or Ms. B? Mr. A.

Why? Mr. A made more money because his money had more time to allow compound interest to work for him. (More TIME is the key to the answer.)

**In this next example**, Ms. B continues to invest \$5,000 a year, from age 40 – 65.

### Compound Interest & Time Value of Money

Ms. B - Invests \$5,000 annually from age 40-65

Age	Investment	New Balance	P + I
40	\$5,000.00	\$5,000.00	\$5,350.00
41	\$5,000.00	\$10,350.00	\$11,074.50
42	\$5,000.00	\$16,074.50	\$17,199.72
43	\$5,000.00	\$22,199.72	\$23,753.70
44	\$5,000.00	\$28,753.70	\$30,766.45
45	\$5,000.00	\$35,766.45	\$38,270.11
46	\$5,000.00	\$43,270.11	\$46,299.01
47	\$5,000.00	\$51,299.01	\$54,889.94
48	\$5,000.00	\$59,889.94	\$64,082.24
49	\$5,000.00	\$69,082.24	\$73,918.00
50	\$5,000.00	\$78,918.00	\$84,442.26
51	\$5,000.00	\$89,442.26	\$95,703.21
52	\$5,000.00	\$100,703.21	\$107,752.44
53	\$5,000.00	\$112,752.44	\$120,645.11
54	\$5,000.00	\$125,645.11	\$134,440.27
55	\$5,000.00	\$139,440.27	\$149,201.09
56	\$5,000.00	\$154,201.09	\$164,995.16
57	\$5,000.00	\$169,995.16	\$181,894.82
58	\$5,000.00	\$186,894.82	\$199,977.46
59	\$5,000.00	\$204,977.46	\$219,325.88
60	\$5,000.00	\$224,325.88	\$240,028.70
61	\$5,000.00	\$245,028.70	\$262,180.70
62	\$5,000.00	\$267,180.70	\$285,883.35
63	\$5,000.00	\$290,883.35	\$311,245.19
64	\$5,000.00	\$316,245.19	\$338,382.35
65	\$5,000.00	\$343,382.35	\$367,419.12

Total Investment            \$130,000.00

How much does her money make over these years? \$237,419.12

How much more money did Ms. B invest in this example than she did when she stopped investing at age 49? \$80,000

How much more money does Ms. B have at age 65 in this example than she did when she stopped investing at age 49? \$149,200.82

How much of that additional money is principal? \$80,000

How much of that additional money is interest? \$69,200.82

So is her additional money more principal or interest? More principal.

Why? Because she didn't have much TIME to allow interest to accrue.

**In this next example**, Ms. B postpones savings for an additional 10 years, and doesn't begin saving until she turns 50. She invests \$5,000 per year, from age 50 – 65.

### Compound Interest & Time Value of Money

Ms. B - Invests \$5,000 annually from age 50-65

Age	Investment	New Balance	P + I
50	\$5,000.00	\$5,000.00	\$5,350.00
51	\$5,000.00	\$10,350.00	\$11,074.50
52	\$5,000.00	\$16,074.50	\$17,199.72
53	\$5,000.00	\$22,199.72	\$23,753.70
54	\$5,000.00	\$28,753.70	\$30,766.45
55	\$5,000.00	\$35,766.45	\$38,270.11
56	\$5,000.00	\$43,270.11	\$46,299.01
57	\$5,000.00	\$51,299.01	\$54,889.94
58	\$5,000.00	\$59,889.94	\$64,082.24
59	\$5,000.00	\$69,082.24	\$73,918.00

60	\$5,000.00	\$78,918.00	\$84,442.26
61	\$5,000.00	\$89,442.26	\$95,703.21
62	\$5,000.00	\$100,703.21	\$107,752.44
63	\$5,000.00	\$112,752.44	\$120,645.11
64	\$5,000.00	\$125,645.11	\$134,440.27
65	\$5,000.00	\$139,440.27	\$149,201.09

Total Investment        \$80,000.00

How much money does Ms. B end up with at age 65 in this example? \$149,201.09

How much interest has her money earned over these years? \$ 69,201.09

How much less money does she have in this example than in her first investing example? \$69,016.94

How much less money does she have in this example than in her second investing example? \$218,218.03

What is working against Ms. B? Time (or the time value of money)

Which plan would you recommend to Ms. B? Plan 2 – invest \$5,000 per year from age 40-65. Or better yet...she should be more like Mr. A.

Based on these examples, what have you learned about saving for retirement? (or savings in general.) What would you recommend to yourself, your friends, or your family?

Answers will vary but should say something about the fact that it's much better to start saving early, even if you then STOP investing because your money will have much more TIME to gain interest.

Thanks for choosing izzit.org materials! We'd love to hear from you! If you have any comments, questions, or feedback, please email [Ask@izzit.org](mailto:Ask@izzit.org) or call us at the number below. We can't serve you well if we don't know what you need!



**Check out more free educational resources  
at [izzit.org](http://izzit.org), including:**

- Current Events Lessons
- Teachable Moments videos
- Learning Modules
- Online Quizzes
- So much more!