

Week 2 – Saving

9th Grade – 12th Grade Education

April is National Financial Literacy Month, which is designed to create awareness about the importance of personal financial education. Over the next 4 weeks, we will be exploring different financial education topics with specific age-minded activities and links designed for your use at home.

This week's topic is Saving Money. It's never too early to teach your teens about saving money. The activities provided in this document will allow teens to explore ways to save money and the importance of interest. Saving money helps all of us set goals and teaches the importance of earning interest on our money. Included in this document are tips, activities and worksheets that you can share with your teen to teach them the importance of saving their money.

Activities, worksheets and more!

- Compound Interest Activity (worksheet on page 3)

<https://www.investor.gov/financial-tools-calculators/calculators/compound-interest-calculator>

Use the calculator in the above link to complete the worksheet titled: *Savings Account Worksheet*

- Rule of 72 information and worksheet on pages 4-7
- Millionaire Quiz on page 8 (answer key on page 9)
- 5 Step Saving/Spending Plan on page 10

Savings Challenge!

52 WEEK MONEY SAVING CHALLENGE

Week	Deposit Amount	Account Balance	✓	Week	Deposit Amount	Account Balance	✓	Week	Deposit Amount	Account Balance	✓
1	\$ 1	\$ 1	<input type="checkbox"/>	19	\$ 19	\$ 190	<input type="checkbox"/>	37	\$ 37	\$ 703	<input type="checkbox"/>
2	\$ 2	\$ 3	<input type="checkbox"/>	20	\$ 20	\$ 210	<input type="checkbox"/>	38	\$ 38	\$ 741	<input type="checkbox"/>
3	\$ 3	\$ 6	<input type="checkbox"/>	21	\$ 21	\$ 231	<input type="checkbox"/>	39	\$ 39	\$ 780	<input type="checkbox"/>
4	\$ 4	\$ 10	<input type="checkbox"/>	22	\$ 22	\$ 253	<input type="checkbox"/>	40	\$ 40	\$ 820	<input type="checkbox"/>
5	\$ 5	\$ 15	<input type="checkbox"/>	23	\$ 23	\$ 276	<input type="checkbox"/>	41	\$ 41	\$ 861	<input type="checkbox"/>
6	\$ 6	\$ 21	<input type="checkbox"/>	24	\$ 24	\$ 300	<input type="checkbox"/>	42	\$ 42	\$ 903	<input type="checkbox"/>
7	\$ 7	\$ 28	<input type="checkbox"/>	25	\$ 25	\$ 325	<input type="checkbox"/>	43	\$ 43	\$ 946	<input type="checkbox"/>
8	\$ 8	\$ 36	<input type="checkbox"/>	26	\$ 26	\$ 351	<input type="checkbox"/>	44	\$ 44	\$ 990	<input type="checkbox"/>
9	\$ 9	\$ 45	<input type="checkbox"/>	27	\$ 27	\$ 378	<input type="checkbox"/>	45	\$ 45	\$ 1,035	<input type="checkbox"/>
10	\$ 10	\$ 55	<input type="checkbox"/>	28	\$ 28	\$ 406	<input type="checkbox"/>	46	\$ 46	\$ 1,081	<input type="checkbox"/>
11	\$ 11	\$ 66	<input type="checkbox"/>	29	\$ 29	\$ 435	<input type="checkbox"/>	47	\$ 47	\$ 1,128	<input type="checkbox"/>
12	\$ 12	\$ 78	<input type="checkbox"/>	30	\$ 30	\$ 465	<input type="checkbox"/>	48	\$ 48	\$ 1,176	<input type="checkbox"/>
13	\$ 13	\$ 91	<input type="checkbox"/>	31	\$ 31	\$ 496	<input type="checkbox"/>	49	\$ 49	\$ 1,225	<input type="checkbox"/>
14	\$ 14	\$ 105	<input type="checkbox"/>	32	\$ 32	\$ 528	<input type="checkbox"/>	50	\$ 50	\$ 1,275	<input type="checkbox"/>
15	\$ 15	\$ 120	<input type="checkbox"/>	33	\$ 33	\$ 561	<input type="checkbox"/>	51	\$ 51	\$ 1,326	<input type="checkbox"/>
16	\$ 16	\$ 136	<input type="checkbox"/>	34	\$ 34	\$ 595	<input type="checkbox"/>	52	\$ 52	\$ 1,378	<input type="checkbox"/>
17	\$ 17	\$ 153	<input type="checkbox"/>	35	\$ 35	\$ 630	<input type="checkbox"/>				
18	\$ 18	\$ 171	<input type="checkbox"/>	36	\$ 36	\$ 666	<input type="checkbox"/>				

\$1,378 Saved!

Savings Account Worksheet: Student Handout

Name _____ Date _____

Directions: Use what you have learned from *Building Your Future: Savings Accounts* to solve each problem below. Be prepared to discuss your answers.

1. You have \$65 in your savings account at the beginning of a month. The bank pays you 2.75% interest on this account each year; interest payments are made each month. Assuming you make no deposits or withdrawals over the next month, how much interest will you earn during the month?
2. You are given the opportunity to put your money in one of two savings account. Account 1 compounds interest monthly at a rate of 0.4%. Account 2 compounds every year at a rate of 4.8%. Which account would you choose and why?
3. You have \$30 today. What is its future value at the end of one year if the interest rate is 3% per year? The interest compounds yearly.
4. You are going to receive a payment of \$100 in one year. You want to determine the discount factor that can be applied to that payment amount in order to calculate the present value of the payment. The interest rate is 4%.
5. You have \$500 in a savings account. How long will it take to double that amount at the following interest rates? Assume interest is paid annually, and use the Rule of 72.
 - A. 1.5%
 - B. 2.75%
 - C. 4.5%

Name _____
Date _____
Period/Course _____



The Rule of 72

Compound interest has the power to turn seemingly small amounts into large fortunes if given enough time and the right interest rate. The Rule of 72 is a simple formula/method used to determine how long an investment/your money will take to double, given a fixed annual rate of interest. The rule states that you take the number 72 and divide by the interest rate you hope to earn on your money. You can also flip the formula/method around to calculate the interest rate you need to double your money by dividing 72 by a year you would like your money/investment to double by.

So, this rule allows the investor to quickly and efficiently answer two questions:

- How long will it take me to double my money if I earn X%?
- What interest rate must I earn if I wish to double my money in X years?

Using the Rule of 72 When the Interest Rate is Known

To find out approximately how many years it will take your savings/money to double when you receive interest you divide the interest rate into 72 (the magic number) and the answer will tell you. (Put 72 into the calculator first, then interest rate- put in a number, not %). For an example, if you want to know how long it will take to double your money at 2% interest, divide 2 into 72 and get 36 years.

Using the Rule of 72 When the Number of Years is Known

The Rule of 72 can also be used backwards. If you want to double your money in a certain number of years you could use the rule to discover the rate of return (interest rate) you would need to earn your financial goal. For an example, if you wanted to double your money in twenty years, you would divide 72 by 20. The result (3.6%) is the interest rate you would need to earn to meet your financial goal on time. (Put 72 into the calculator first, then year).

Directions: Go to www.themint.org. Click on tips for teens. Click on the try it! Tab. Under For Teens, click on the Power of 72 Calculator. Read the text on the web page. Use the calculators to find the answers to the following below.

Part1: Find the number of years it will take for your money to grow!

<u>Interest Rate</u>	<u># of Years for Money/Savings to Double</u> (Round answer with decimals to the nearest whole number/or tenth.)
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1%
2%
3%
4%
5%
6%
7%

Question 1: How many years would it take you to double your \$1,000 investment if you earned an interest rate of 2%?

Answer:

Question 2: How many years would it take to double \$150 if it earned interest at a rate of 8%?

Answer:

Question 3: How many years would it take to double \$500 if it earned interest at a rate of 1.75%?

Answer:

Note: As you can see, the higher the interest rate, the shorter time/number of years it will take to double your investment. Unfortunately interest rates on accounts are very low currently so regardless of your investment option it will take awhile to double your money. Rates will hopefully go up in the future!

Part 2: Let's flip it around now! Find the interest rate needed to double your money/savings.

Years **Interest Rate Needed to Double Money/Savings**
(Round answer with decimals to the nearest whole number/or tenth.)

10
12
14
16
18
20
22
25
30
35
40
45
50

Question 1: You need to double your money in 36 years to reach your financial goals. What rate of return must you earn to do this successfully?

Answer:

Question 2: What interest rate would be necessary to double \$500 investment in 15 years?

Answer:

Note: As you can see, the higher the interest rate, the shorter time/number of years it will take to double your investment. Unfortunately, with the way interest rates are today, you are not going to be earning any high interest rates. As discussed, interest rates are extremely low. Some day that can change but as of now it will take you at least 25 years or more to double your savings. But think of it this way: If you put aside \$500 when you are 17 and did not touch it, you could have that money doubled when you retire if you are just earning a 1% interest. Hey, that is money you did not have!

Name _____
Date _____
Period/Course _____



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So, this rule allows the investor to quickly and efficiently answer two questions:

- How long will it take me to double my money if I earn X%?
- What interest rate must I earn if I wish to double my money in X years?

Using the Rule of 72 When the Interest Rate is Known

To find out approximately how many years it will take your savings/money to double when you receive interest you divide the interest rate into 72 (the magic number) and the answer will tell you. (Put 72 into the calculator first, then interest rate- put in a number, not %). For an example, if you want to know how long it will take to double your money at 2% interest, divide 2 into 72 and get 36 years.

Using the Rule of 72 When the Number of Years is Known

The Rule of 72 can also be used backwards. If you want to double your money in a certain number of years you could use the rule to discover the rate of return (interest rate) you would need to earn your financial goal. For an example, if you wanted to double your money in twenty years, you would divide 72 by 20. The result (3.6%) is the interest rate you would need to earn to meet your financial goal on time. (Put 72 into the calculator first, then year).

Directions: Go to www.themint.org. Click on tips for teens. Click on the try it! Tab. Under For Teens, click on the Power of 72 Calculator. Read the text on the web page. Use the calculators to find the answers to the following below.

Part1: Find the number of years it will take for your money to grow!

<u>Interest Rate</u>	<u># of Years for Money/Savings to Double</u> (Round answer with decimals to the nearest whole number/or tenth.)
1%	72 years
2%	36 years
3%	24 years
4%	18 years
5%	14.4 years = about 14 years
6%	12 years
7%	10.28 = about 10 years

Question 1: How many years would it take you to double your \$1,000 investment if you earned an interest rate of 2%?

Answer: 36 years

Question 2: How many years would it take to double \$150 if it earned interest at a rate of 8%?

Answer: 9 years

Question 3: How many years would it take to double \$500 if it earned interest at a rate of 1.75%?

Answer: 41.1 years = about 41 years

Note: As you can see, the higher the interest rate, the shorter time/number of years it will take to double your investment. Unfortunately, interest rates on accounts are very low currently so regardless of your investment option it will take awhile to double your money. Rates will hopefully go up in the future!

Part 2: Let's flip it around now! Find the interest rate needed to double your money/savings.

<u>Years</u>	<u>Interest Rate Needed to Double Money/Savings</u> (Round answer with decimals to the nearest whole number/or tenth.)
10	7.2%
12	6%
14	5.14%
16	4.5%
18	4%
20	3.6%
22	3.27%
25	2.88%
30	2.4%
35	2.05%
40	1.8%
45	1.6%
50	1.44%

Question 1: You need to double your money in 36 years to reach your financial goals. What rate of return must you earn to do this successfully?

Answer: 2%

Question 2: What interest rate would be necessary to double \$500 investment in 15 years?

Answer: 4.8%

Note: As you can see, the higher the interest rate, the shorter time/number of years it will take to double your investment. Unfortunately, with the way interest rates are today, you are not going to be earning any high interest rates. As discussed, interest rates are extremely low. Some day that can change but as of now it will take you at least 25 years or more to double your savings. But think of it this way: If you put aside \$500 when you are 17 and did not touch it, you could have that money doubled when you retire if you are just earning a 1% interest. Hey, that is money you did not have!

The Truth About Millionaires



Think you know what millionaires are really like?

Take this short quiz and see if you are right.

True or False

1. Most millionaires inherited their money.
 True False
2. Millionaires don't actually work. They have people who work for them.
 True False
3. Millionaires shop in very exclusive stores, not where ordinary people shop.
 True False
4. Millionaires drive impressive cars.
 True False
5. Most millionaires make their money in glamorous ways – they are basketball players, musicians or other celebrities.
 True False
6. Millionaires have lots of credit cards.
 True False
7. Most millionaires own their own business.
 True False
8. Many poor people become millionaires by winning the lottery.
 True False
9. Most millionaires are college graduates.
 True False
10. There is a good possibility that you can be a millionaire.
 True False

The Truth About Millionaires



Answers

1. Most millionaires inherited their money.
FALSE. Only 19% of millionaires were given any money or wealth from family.
2. Millionaires don't actually work. They have people who work for them.
FALSE. Most work more than 45 hours a week.
3. Millionaires shop in very exclusive stores, not where ordinary people shop.
FALSE. 43% of millionaires have a Sear's card.
4. Millionaires drive impressive cars.
FALSE. Only 23% of millionaires drive a new car.
5. Most millionaires make their money in glamorous ways – they are basketball players, musicians or other celebrities.
FALSE. Most millionaires work in very ordinary jobs. They are paving contractors or have a pest control business.
6. Millionaires have lots of credit cards.
FALSE. Many keep just one credit card and most pay it off in full each month. They do not like paying interest on debt.
7. Most millionaires own their own business.
TRUE. Most millionaires consider themselves to be entrepreneurs. This may explain why they work more hours than you would think. They are decision-makers for their own companies.
8. Many poor people become millionaires by winning the lottery.
FALSE. The chances of winning the Powerball Lottery are 1 in 17 billion. You have a better change of being struck by lightning. Your chances of that are 1 in 9 million.
9. Most millionaires are college graduates.
TRUE. 4 out of 5 millionaires are college graduates. 24% have earned masters or doctoral degrees. Another 14% have earned medical or law degrees. They are well educated.
10. There is a good possibility that you can be a millionaire.
TRUE. It is not that hard if you stick to a saving plan. Let say you invest \$3,000 each year from age 21 to age 64 when you want to retire and earn 8%. You will retire with a million bucks!

* Statistics from The Millionaire Next Door, Thomas J. Stanley, Ph.D and William D. Danko, Ph.D., 1998

The 5-Step Save/Spend Plan

How much of your income should you stash away in savings? You may think: I'll just put money into savings whenever I don't spend it. And how often do you think that will happen? Remember to pay yourself first.

Step 1: Where to begin? Start by pledging to come up with a plan and to stick to it. Next, try out the [Money Diary](#) in the Tracking Section. It will help you figure out how much money you have coming in each month and how you are spending your money. Then work out how much you want to spend on everyday items. If you're spending more than the limit, think about where you can cut back.

Step 2: What money do you have coming in? Depending on your age and life at the moment, this may change from month to month. Your allowance may be set, but the income you get from baby-sitting or odd jobs may change a lot. Start with what is [average](#) or what you can count on.

Step 3: How much would you like to save? Divide that money into different savings categories: saving for everyday [expenses](#), short-term saving for emergencies, long-term saving for college, and longer-term saving for the future. You may want to set aside money to give to a charity. Several piggy banks or envelopes for your cash may help you keep your money separate. It may make sense to keep a stash of cash for everyday expenses in your bedroom. The rest should be kept in a savings account so you can earn interest.

Do you have a goal in mind, like saving for a car or new touring bike? Check out the [Saving Calculator](#). It will calculate how long it takes to save an amount of money. The calculator can also tell you how much money you need to save each month to reach a goal in a certain time period.

Step 4: Put it in writing. Writing your plan in your money diary gives it more power. Also by keeping a money diary, you'll be able to see how much money you have coming in, how much money you spend, where it all goes, and how much money you save each week or each month. Keep notes to yourself that compare your savings account [balance](#) with your savings goals. Keep it in your [Money Diary](#).

You might not like these new boundaries on your spending. In fact, you may think that you don't have enough spending money. Everybody feels that way. We all have a limited amount of money. Now that you're getting older, you are learning that you have to make choices when it comes to money. It is easy to say, "I just need more of it!" You have to manage your money – so you can get the most out of the dollars you have. Ready to learn more? Learn how to [live on a budget](#).

Step 5: Adjust. If your plan isn't working, you can always make changes. But be honest with yourself about why the plan doesn't work before you change it. What's wrong? Maybe your numbers weren't realistic, and you have to be more practical. On the other hand, maybe the numbers are right, but you're having a hard time sticking to them. Maybe you have to change your habits to make it work.

By taking a hard look at what you do with your money, you can begin to set some limits and shift money around between spending and saving – that's called managing your money.