

Name: _____

IN THIS LESSON, YOU WILL:

- Explore compound interest equation
- Compare exponential and linear growth outcomes
- Distinguish between situations that can be modeled with linear functions and with exponential functions.
- Explain the difference between banks and credit unions
- Understand the difference between a checking and savings account and its features
- Compare different types of savings accounts with their costs and benefits
- Explore alternatives to a traditional savings account
- Investigate modern saving apps that can integrate into a personal savings plan



INTRO

VIDEO: [Banks vs. Credit Unions: What's the Difference?](#)

Watch the video and answer the following questions. Compare your answers with a partner and discuss any similarities and differences.

1. **What are the three main categories where banks and credit unions differ?**
2. **Describe the differences in one of these categories.**
3. **Does a bank or a credit union fit better with your own personal ideas of what you'd like out of your banking institution? Why?**



LEARN IT

VIDEO: [What's the Difference Between Checking and Savings?](#)

You may be tempted to think you're all set once you have a checking account, but it's important to have a savings account, too. Watch this video and then answer the following questions.

- 1. What is one way banks make money, according to the video?**
 - 2. Why can banks offer you interest on your savings account but not your checking account?**
 - 3. Would you expect someone earning more than they spend to keep the majority of their money in a checking account or a savings account for the long term? Why?**
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INFOGRAPHIC: [What is the Difference Between Checking and Savings Accounts?](#)

Checking and savings accounts are both important tools for managing your money, but they are used for very different purposes. Read through this infographic for further details about how these accounts are different. Then, answer the questions.

- 1. How does the interest rate compare between checking and savings accounts?**
 - 2. What is one fee with a savings account that you do NOT have with a checking account?**
 - 3. Up to what value does FDIC insurance cover your deposits?**
 - 4. Does FDIC insurance cover checking accounts, savings accounts, both, or neither?**
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ACTIVITY: [COMPARE: Types of Savings Accounts](#)

Now that you know the difference between checking and savings accounts, let's take a closer look at different types of savings accounts. Follow the directions on the worksheet to complete this activity.

VIDEO: [EdPuzzle: Is the Savings Account Dead?](#)

Watch this EdPuzzle video (up to the 5:05 mark) and answer the questions about savings accounts and wealth building. Watch this video to learn more about the role of savings accounts. Then, answer the questions either in EdPuzzle or below.

1. **The video references a high yield account. What does "high yield" mean?**
 - a. Giving a low return
 - b. Giving a high return
 - c. Free to open with any deposit amount
 - d. Requiring a high initial deposit amount
2. **What happens to the money that you deposit at a bank?**
 - a. The bank lends out the money at a higher interest rate than what they are paying you.
 - b. The bank lends out the money at a lower interest rate than what they are paying you.
 - c. The money sits at the bank until you are ready to withdraw or use it.
 - d. The money is sent to the Federal Reserve, where it sits until you're ready to withdraw or use it
3. **If inflation is at 2% and you are earning 1% return on your savings account, what is your "real return?"**
 - a. +3%
 - b. -3%
 - c. +1%
 - d. -1%

ACTIVITY: Savings...or NOT?

For each of the 7 situations below, circle whether the descriptions apply to savings or some other account.

	Scenario	Which account should they use?	
1	Chris wants to put money aside so he can buy his mom a birthday present.	Savings	NOT
2	Sam wants to buy school supplies for a project she is working on.	Savings	NOT
3	Aisha wants to withdraw \$20 from an ATM so she can buy a movie ticket and go watch the movie with her friends.	Savings	NOT
4	Neil rides his bike every day to school and back and is responsible for maintaining his bike. He wants to make sure he has money to fix or replace anything that might break in the future.	Savings	NOT
5	Rosa is going on a vacation with her parents in a few months and wants to put the money she just got from the holidays aside to buy souvenirs.	Savings	NOT
6	Jamil wants to take his birthday money and put it away where it can grow for 15 years and help with a down payment on a future house he wants.	Savings	NOT
7	Harry has an account at his bank. It has a linked debit card and no limits	Savings	NOT

on monthly withdrawals. He earns no interest on this account.

1. What are some things the “Savings” scenarios have in common?
2. For each of the “NOT” scenarios, discuss with a partner what might be a good alternative to savings

ARTICLE: [NerdWallet's 3 Best Money-Saving Apps](#)

If savings accounts and CDs are a thing of the past, then what ARE people using nowadays? Often in today's digital society, consumers do not interact as much directly with their banks but instead use other apps to track and manage their finances.

Pick one of the three apps in the article and fill out the following table. Fill in the rest of the table and answer the questions as you share out with the class.

	Acorns	Qapital	Digit
How It Works			
Savings or Investment?			
Cost or Fees			
Who could benefit from an app like this?			

1. How could paying for an app like one of these possibly help you save money?
2. What are some alternative ideas you could use for free?



MATH CONNECTION - ANALYZING EQUATIONS

Now that you know the basics of savings accounts and earning interest, answer the following questions about saving, interest growth, and how your money grows in different accounts.

Part I: Checking Account Balances

Phillip has two accounts where he is storing his money. He has zero interest checking accounts and has met all the minimum requirements to have zero fees. The Account at Bank A starts with \$300 and saves \$20/month. The Bank B account starts with \$100 and he deposits \$1/day. Assume every month has 30 days.

1. How much money will the accounts have after 1 month? After 1 year? After 10 years?

	1 month	1 year	10 years
Bank A			
Bank B			

2. Write equations that represent the balance in each account (y) as a function of time (x).
3. When will the accounts have the same balance?
4. On a graph, how could you tell the point where the accounts have the same balance?
5. How much did the money grow in each bank account from just deposits over 10 years?
6. What seems to be more important in the long-term, starting balance or monthly savings rate?

Part II: Compounding Interest

Phyllis (Phillip's sister) has also learned good saving habits, but she wants to know what different savings accounts will help her earn. She invests \$3000 in each of three different savings account types each with different interest rates as shown below.

You will use this compounding interest formula to calculate how much her money will earn in each of the accounts based on the interest rate (r) as a decimal and time (t) in years. For each different account, you will change the variable for interest rate (r) and time (t). For one month, use 0.083 years.

$$\text{Amount} = 3000 \cdot (1 + r)^t$$

1. How much money will the accounts have after 1 month? After 1 year? After 10 years?

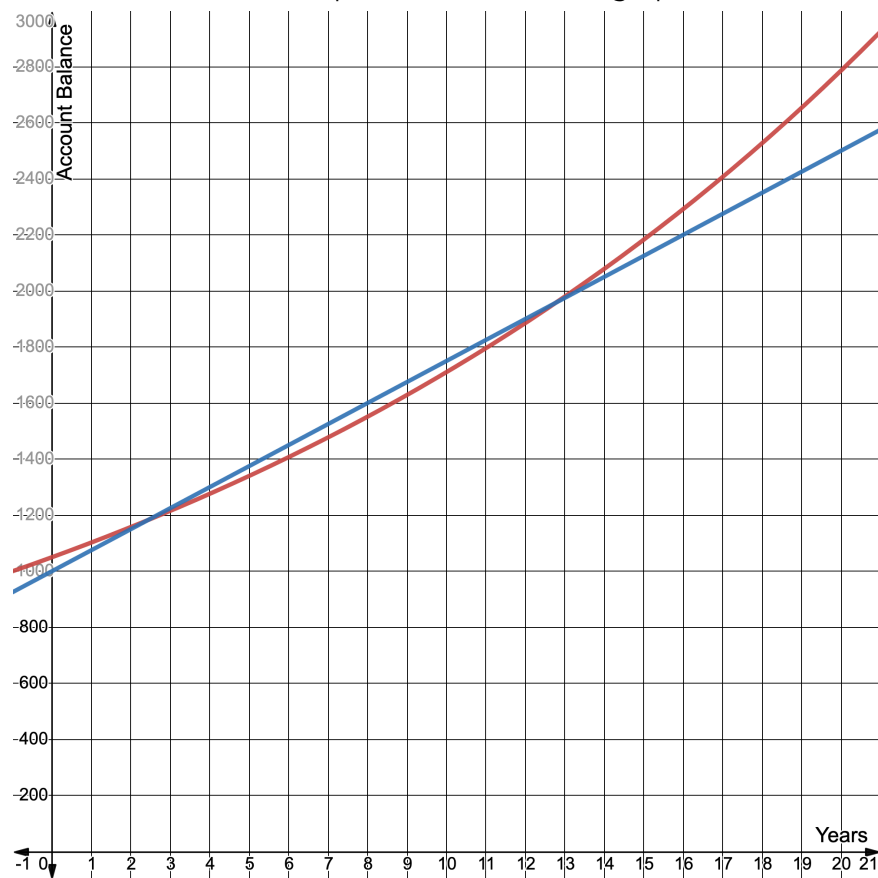
	Interest (r)	1 month	1 year	10 years
Savings	.0050			
Money Market	.0055			
CD	.0075			

2. How much did the money grow in each bank account from just interest over 10 years?

3. What brought in more money over 10 years, monthly savings or interest growth?

Part III: Simple vs Compound Interest

Philomena, trying to get more growth from her money, is deciding between two investment accounts for her \$1050. The Red account predicts a 5% interest compounded annually and a \$1050 starting balance. The Blue account guarantees a 7.5% simple interest added annually and a one-time \$50 fee making it a \$1000 starting balance. Below are the two accounts plotted on the same graph.



1. Which earns more after 5 years?
2. Which earns more after 20 years?
3. Approximately how much more does account 1 earn after 20 years?
4. Approximately when will the two accounts have the same balance?
5. How many solutions does this system of equations have? How can you tell?
6. Compound interest leads to an exponential growth equation while simple interest results in linear growth. If you go further out to 25 years or 50 years, what do you think will happen to the difference between the compounding function and the simple interest function?



EXIT TICKET

Follow your teacher's instructions to complete the exit ticket.

Teachers, you can find exit ticket questions on the Lesson Guide.