



# Middle School Activity Packet: Banks & Interest Basics



Much like reading with children from a young age can help strengthen literacy, engaging with children about money topics can be a powerful tool to help them better understand money and develop healthy habits. In fact, research shows that many money habits are set by age seven.

The Illinois State Treasurer's Office created the Money Minded Illinois program in 2018. It is a free financial literacy curriculum for teachers and school districts across the state. It was written to meet Illinois State Board of Education (ISBE) standards, and full curriculum booklets are available for download for first grade through middle school at [MoneyMindedIllinois.com](http://MoneyMindedIllinois.com).

Activities from each grade booklet were selected to make packets for families and communities to engage with children in conversations about money. To cover a range of basics for 6<sup>th</sup> – 8<sup>th</sup> grade, we've created packets by topic. In this packet, there is a variety of **individual activities and group games about banks and interest**. We hope you enjoy learning and playing together.

Check out other middle school activity packets:

- Budgeting
- Credit
- Risk, Investments & Insurance



You can also enhance your own personal finance knowledge by creating a free account on the Illinois Financial Wellness Hub (FinWell Hub) at [IllinoisTreasurer.Enrich.org](http://IllinoisTreasurer.Enrich.org). The FinWell Hub offers practical tools and courses, as well as free access to Certified Personal Finance Coaches. The FinWell Hub is for adults and high school age students.

Happy learning!

Illinois State Treasurer's Office

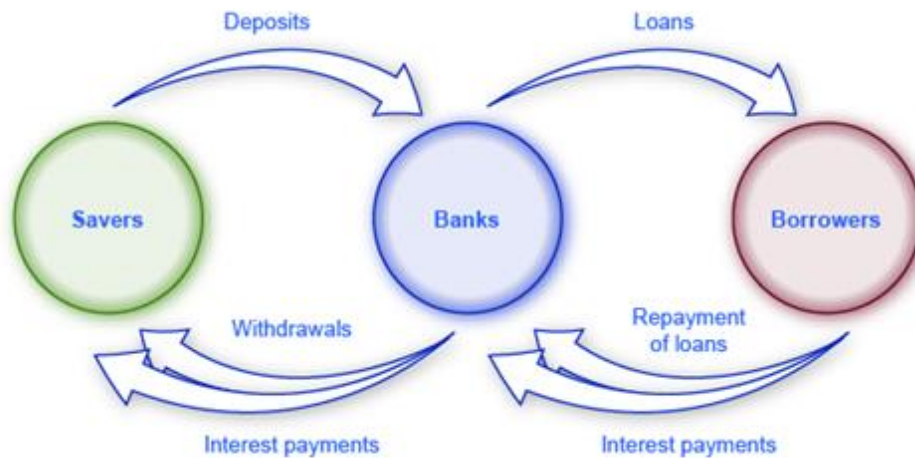


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# What Do Banks Do?

Banking is a difficult concept to understand. There are a lot of moving pieces, and sometimes it's like they have their own language! It's important to understand the basics of banking so you can ensure that you know what is happening with your money. Below are excerpts from an article (edited to break the concept a little easier) that tries to break down the basics of banking.

While reading, keep this image in mind.



## The Banking System

Accounting for trillions in assets worldwide, the banking system is a crucial component of the global economy. While money-changing and money-lending may be as old as money, banking dates back to 15th century medieval Italy, and played a major role in the rise of the Italian city-states as world economic powers.

Banks are just one part of the world of financial institutions, standing alongside investment banks, insurance companies, finance companies, investment managers and other companies that profit from the creation and flow of money. As financial intermediaries, banks stand between depositors who supply capital and borrowers who demand capital. 'Capital' refers to the wealth that is owned by individuals or a company. Given how much commerce and individual wealth rests on healthy banks, banks are also among the most heavily regulated businesses in the world.

"Texas Gateway." *Cell Specialization and Differentiation* | Texas Gateway, [www.texasgateway.org/resource/133-role-banks](http://www.texasgateway.org/resource/133-role-banks).

Stephen D. Simpson, CFA. "The Banking System." *Investopedia*, Investopedia, 30 Mar. 2017, [www.investopedia.com/university/banking-system/](http://www.investopedia.com/university/banking-system/).



## Accept Deposits / Make Loans

At the most basic level, what banks do is simple. Banks accept deposits from customers, raise capital from investors or lenders, and then use that money to make loans and provide financial services to customers. These loans are then used by people and businesses to buy goods or expand business operations, which in turn leads to more deposited funds that make their way to banks.

If banks can lend money at a higher interest rate than they have to pay for funds and operating costs, they make money.

## Provide Safety

Banks also provide security and convenience to their customers. Part of the original purpose of banks, and the goldsmiths that predated them, was to offer customers safe keeping for their money. Of course, this was back in a time when a person's wealth consisted of actual gold and silver coins, but to a large extent this function is still relevant. By keeping physical cash at home, or in a wallet, there are risks of loss due to theft and accidents, not to mention the loss of possible income from interest. With banks, consumers no longer need to keep large amounts of currency on hand; transactions can be handled with checks, debit cards or credit cards instead.

While banks do not keep gold or silver bullion as currency on hand anymore, many, if not most, banks still maintain vaults and will rent out space to customers, in the form of safe deposit boxes. This allows customers to keep precious or irreplaceable items in a secure setting and gives the bank an opportunity to earn a little extra money, without risk to its capital.

## Deposits

The largest source by far of funds for banks is deposits; money that account holders entrust to the bank for safekeeping and use in future transactions, as well as modest amounts of interest. Generally referred to as "core deposits," these are typically the checking and savings accounts that so many people currently have.

In most cases, these deposits have very short terms. While people will typically maintain accounts for years at a time with a particular bank, the customer reserves the right to withdraw the full amount at any time. Customers have the option to withdraw money upon demand and the balances are fully insured, up to \$250,000. Many banks pay no interest at all on checking account balances, or at least pay very little, and pay interest rates for savings accounts that are well below U.S. Treasury bond rates.

## Use of Funds

### *Loans*

For most banks, loans are the primary use of their funds and the principal way in which they earn income. Loans are typically made for fixed terms, at fixed rates and are typically secured with real property; often the property that the loan is going to be used to purchase. Some examples of this include loans to start a new business or a construction project.

"Texas Gateway." *Cell Specialization and Differentiation* | Texas Gateway, [www.texasgateway.org/resource/133-role-banks](http://www.texasgateway.org/resource/133-role-banks).

Stephen D. Simpson, CFA. "The Banking System." *Investopedia*, Investopedia, 30 Mar. 2017, [www.investopedia.com/university/banking-system/](http://www.investopedia.com/university/banking-system/).



As such, banks play an under-appreciated role in the economy. To some extent, bank loan officers decide which projects, and/or businesses, are worth pursuing and are deserving of capital.

### *Consumer Lending*

Consumer lending makes up the bulk of North American bank lending, and of this, residential mortgages make up by far the largest share. Mortgages are used to buy homes and are typically written for 30-year repayment periods and interest rates may be fixed, adjustable, or variable.

Automobile lending is another significant category of secured lending for many banks. Compared to mortgage lending, auto loans are typically for shorter terms and higher rates. Banks face extensive competition in auto lending from other financial institutions, like captive auto financing operations run by automobile manufacturers and dealers.

As the cost of post-secondary education continues to rise, more and more students find that they have to take out loans to pay for their education. Accordingly, student lending has been a growth market for many banks.

Credit cards are another significant lending type and an interesting case. Credit cards are, in essence, personal lines of credit that can be drawn down at any time. While Visa and MasterCard are well-known names in credit cards, they do not actually underwrite (take risk on) any of the lending. Visa and MasterCard simply run the networks through which money (debits and credits) is moved around between the shopper's bank and the merchant's bank, after a transaction.

"Texas Gateway." *Cell Specialization and Differentiation* | Texas Gateway, [www.texasgateway.org/resource/133-role-banks](http://www.texasgateway.org/resource/133-role-banks).

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## Things to think about with Electronic or Online Banking



A debit card is directly tied to your bank account and is used in the same way as cash or a check. When you use your debit card, the amount of your purchase will be automatically deducted from your account. It's important to keep a record of all your debit card transactions – just as you would with checks that you write. It's also important that you check your transactions against your bank statement to make certain they are correct. It's important to contact your bank immediately if you have a problem or think there may be a security breach of your account.

The internet has brought massive changes to almost everything, including banking. It provides connections to almost anything imaginable – all within a matter of seconds. It's important to think about the pros and cons of using online banking. Here are a few main considerations:

**Advantages.** Generally, online banking is secure, as long as the website has a valid security certificate. Be sure you only use a website that has 'https' before the website's domain name. If it does not, it can be a red flag that the website is not safe. Another advantage is you can visit the website and conduct transactions when it is convenient for you, and on a variety of devices, instead of worrying whether the bank is still open. There are many bank-related services available online such as viewing your statements, applying for a loan, and transferring money.

**Disadvantages.** Identity theft is a problem and banks can be affected. It can take months, sometimes even years, for a breach in your identity to be cleared up. Remember that not all online transactions are immediate. If you are paying a bill that's due, it may take a couple of days for the transaction to clear so plan accordingly and don't wait until the last minute. Sometimes it's hard to determine if an email you

### Electronic Banking includes:

- Automated Teller Machines (ATMs)
- Debit cards
- Automatic withdrawals and transfers
- Direct deposits
- Online banking services

You can use an ATM to:

- Make deposits or withdrawals
- Transfer money between accounts
- Check your balance

You can use a debit card to:

- Pay for purchases at a store
- Pay for purchases online

You can use a computer or digital device to:

- Check your account balance
- Transfer money between accounts
- Pay bills
- Make payments on loans

Source: Consumer Financial Protection Bureau, Council for Economic Education, Financial Fitness for Life, Grades 6-8



receive is actually from your bank or an online hacker. Always make sure you log on directly to your bank's website and not by clicking a link through an email message.

Overall, online banking does have some advantages and disadvantages, but consumers will likely use it even more in the coming years. Therefore, you must take care to protect your personal and financial information. Remember, get a hold of your bank right away if you ever have doubts about something. It's always good to listen to your 'gut instinct' when you feel something is not right.

Monitor the fees! Most banks charge service fees but be careful – fees can sneak up on you and quickly add up. Here are a few tips:

- ✓ **Minimum balance.** It can be easy to lose track of your monthly balance when using a debit card. If your balance falls below the minimum, you will receive a service charge. This amount is automatically deducted from your account.
- ✓ **Overdrawn accounts.** Overdrawing an account means that you have used more money than you have in the account. Most banks will charge you an overdraft fee in addition to other charges.
- ✓ **Savings account withdrawals.** There is a federal law limiting how many times you can withdraw money from a savings account. You will be charged an excessive-activity fee if you withdraw six times per month. The law encourages people to build up their savings instead of frequently using it for incidental purchases.



**Did you know that purchases under \$25 cause the majority of debit card overdraft fees?**

**Always keep track of your how much money you have in the bank!**



## How Banks Work Activity

You learned that banks act as intermediaries. They accept money from savers, and pay them interest. They lend some of that money to borrowers, and charge them interest. Banks make a profit by charging for their services. They receive more interest from borrowers than they pay to savers.

This activity demonstrates how banks make loans and earn a profit.

First, you will draw a number out of a bag (1-4). This number represents how many index cards you will receive. Your index cards represent your income, as well as your paper clips.

You get to decide whether you are going to build a house or start a business. Here are the costs:

- Big business – 4 index cards
- Big house – 3 index cards
- Small business – 2 index cards
- Small house – 1 index card

When directed, you will flip your coins two times to decide what to build:

- Heads-Heads: You will build a big business
- Heads-Tails: You will build a big house
- Tails-Heads: You will build a small business
- Tails-Tails: You will build a small house

Depending on what you get, stack your cards together, and label the top one accordingly. If you are building a business, label what kind of business you would like to build. Then, bring it over to the community table.

After, decide if you want to put your leftover index cards back in the bank. If you do, you'll receive in interest one paperclip.

If you run out of business cards as our community continues to build, you will have to take a loan out of the bank. You will be charged two paper clips for one index card.



## How Banks Work Activity – Teacher Information

In the reading information, students learned about banks and how they act as intermediaries between savers and borrowers. This activity demonstrates how banks make loans and earn a profit. The teacher is the banker and the object of the game is to fill the community with homes and businesses, just like a real community.

### Items Needed:

- One penny for each student
- 6 paper clips per student (plus 25 additional paper clips)
- Write the numbers 1, 2, 3, or 4 on half slips of paper (enough so each student in class gets a number). Fold those half slips of paper either in half or quarters so the students don't see the number on the inside.
- 100 index cards
- Stapler
- Build a “community” by using either a large table or putting a few desks together

### Instructions:

- Place the folded slips of paper with numbers in a paper bag. Each student draws a number out of the bag and receives that number of index cards.
- Explain to students that the index cards and paper clips represent income. Not all students have the same income, just as people in a real society earn different incomes.
- After the students receive their cards, put the remaining cards in the ‘bank’.
- You, as the teacher, are the bank. Count the bank's assets:
  - How many paper clips does the bank have? (This should be 25- the additional paper clips listed in Items Needed)
  - How many index cards does the bank have?
  - Write those numbers on the board
- Explain that students will use their income to either build a house or start a business.
- Each student will flip their coin two times to decide what they will build:
  - Heads-Heads: They will build a big business (4 cards)





- Heads-Tails: They will build a big house (3 index cards)
- Tails-Heads: They will build a small business (2 index cards)
- Tails-Tails: They will build a small house (1 index card)
- If students have enough index cards to build, they staple the index cards together
  - If they are building a house, they label their pack of cards “H” and place the pack somewhere on the community table.
  - If they are building a business, they label their pack of cards with the kind of business they decide to build (e.g., grocery store, jewelry shop, barber, computer repair, ice cream, restaurant, etc.) and put that pack on the community table.
  - Students should not duplicate any businesses.
  - Students should arrange the businesses and houses so that they are set up the way a real community might be.
- If students have index cards left over, they can save them in the bank. They receive one paper clip in interest from the bank for each card they save.
- Have students flip their coins at least three times.
- What can students do if they do not have enough cards to build? Explain that students who need money to build can borrow from the bank. They must pay the bank 2 paper clips for each card they receive.
  - Explain that the bank charges more interest to borrowers (2 clips per index card) than it pays to savers (1 clip per index card). This is part of how a bank makes a profit.
- To conclude, count the number of paper clips and cards the bank has at the end (after three flips of the coins) and compare it to the numbers on the board from the start of the activity.
- Discuss how many has changed hands and how the bank has helped people in the community.



# What Is Interest?

## How Interest Works with Everyday Loans

Interest is the cost of using somebody else's money. When you borrow money, you pay interest. When you lend money, you earn interest.

There are several different ways to calculate interest, and some methods are more beneficial for lenders. The decision to pay interest depends on what you get in return, and the decision to earn interest depends on the alternative options available for investing your money.

### What Is Interest?

Interest is calculated as a percentage of a loan (or deposit) balance, paid to the lender periodically for the privilege of using their money. The amount is usually quoted as an annual rate, but interest can be calculated for periods that are longer or shorter than one year.

Interest is extra money that must be repaid — in addition to the original loan balance or deposit. To put it another way, consider the question: What does it take to borrow money? The answer: More money.

When borrowing: To borrow money, you'll need to repay what you borrow. In addition, to compensate the lender for the risk of lending to you (and their inability to use the money anywhere else while you use it), you need to repay *more than you borrowed*.

When lending: If you have extra money available, you can lend it out yourself or deposit the funds in a savings account (effectively letting the bank lend it out or invest the funds). In exchange, you'll expect to earn interest. If you are not going to earn anything, you might be tempted to spend the money instead, because there's little benefit to waiting (other than saving for future expenses).

How much do you pay or earn in interest? It depends on:

1. The interest rates
2. The amount of the loan
3. How long it takes to repay

A higher rate or a longer-term loan results in the borrower paying more.

**Example:** An interest rate of five percent per year and a balance of \$100 results in interest charges of \$5 per year (assuming you use simple interest).

Most banks and credit card issuers do not use simple interest. Instead, interest compounds, resulting in interest amounts that grow more quickly (see below).

Pritchard, Justin. "How Interest Works on Savings and Loans." *The Balance*, [www.thebalance.com/what-is-interest-315436](http://www.thebalance.com/what-is-interest-315436).



## Earning Interest

You earn interest when you lend money or deposit funds into an interest-bearing bank account such as a savings account or a certificate of deposit (CD). Banks do the lending for you: They use your money to offer loans to other customers and make other investments, and they pass a portion of that revenue to you in the form of interest.

Periodically, (every month or quarter, for example) the bank pays interest on your savings. You'll see a transaction for the interest payment, and you'll notice that your account balance increases. You can either spend that money or keep it in the account so it continues to earn interest. Your savings can really build momentum when you leave the interest in your account – you'll earn interest on your original deposit *as well as the interest added to your account*.

Earning interest on top of interest you earned previously is known as compound interest.

**Example:** You deposit \$1,000 in a savings account that pays a five percent interest rate. With simple interest, you'd earn \$50 over one year. To calculate:

1. Multiply \$1,000 in savings by five percent interest per year.
2.  $\$1,000 \times .05 = \$50$  in earnings (see how to convert percentages and decimals).
3. Account balance after one year = \$1,050.

However, most banks calculate your interest earnings every day – not just after one year. This works out in your favor because you take advantage of compounding. Assuming your bank compounds interest daily:

- Your account balance would be \$1,051.16 after one year.
- Your annual percentage yield (APY) would be 5.12 percent.
- You would earn \$51.16 in interest over the year.

The difference might seem small, but we're only talking about your first \$1,000 (which is an impressive start, but it will take even more savings to reach most financial goals).

With *every* \$1,000, you'll earn a bit more. Over time (and as you deposit more), the process will continue to snowball into bigger and bigger earnings. If you leave the account alone, you'll earn \$53.78 in the following year (compared to \$51.16 the first year).

## Paying Interest

When you borrow money, you generally have to pay interest. But that might not be obvious – there's not always a line-item transaction or separate bill for interest costs.

**Installment debt:** With loans like standard home, auto, and student loans, the interest costs are baked into your monthly payment. Each month, a portion of your payment goes towards

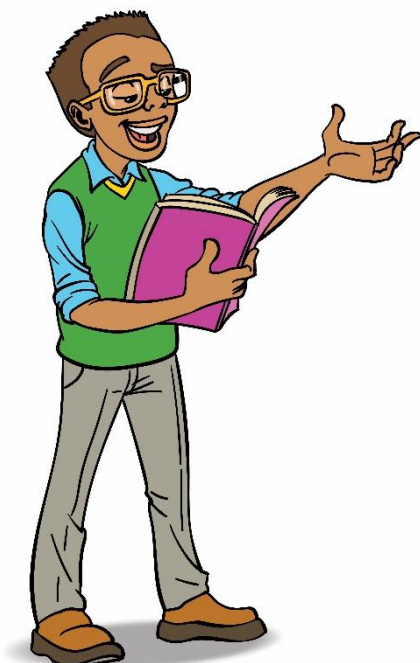
Pritchard, Justin. "How Interest Works on Savings and Loans." *The Balance*, [www.thebalance.com/what-is-interest-315436](http://www.thebalance.com/what-is-interest-315436).



reducing your debt, but another portion is your interest cost. With those loans, you pay down your debt over a specific time period (a 15-year mortgage or 5-year auto loan, for example). To understand how these loans work, read about loan amortization.

**Revolving debt:** Other loans are revolving loans, meaning you can borrow more month after month and make periodic payments on the debt. For example, credit cards allow you to spend repeatedly as long as you stay below your credit limit. Interest calculations vary, but it's not too hard to figure out how interest is charged and how your payments work.

**Additional costs:** Loans are often quoted with an annual percentage rate (APR). This number tells you how much you pay per year and may include additional costs above and beyond the interest charges. Your pure interest cost is the interest "rate" (not the APR). With some loans, you pay closing costs or finance costs, which are technically not interest costs that come from the amount of your loan and your interest rate.



# CALCULATING INTEREST



Below are different saving and borrowing scenarios. You will need to calculate the simple interest you would either pay or earn for each. You can create an Excel spreadsheet or use a calculator to determine the interest.

1. You want to buy a bike that costs \$150.00. You have saved \$25.00 and want to deposit it in your savings account. The current interest rate is 3%. How much interest will you earn in two years?
  
2. Your family wants to buy a new television that costs \$700. They purchase the television set and put it on their credit card, which charges 18% interest. How much interest will they pay on the television set if it takes them 1 year to pay for the television?
  
3. The repairman tells your family that you need a new heater for your home. It costs \$3,500. Your family talks to the bank about getting a loan for 24 months. The interest rate is 9%. How much interest will your family pay over the 24 months?



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

### *Compound Interest*

**Compound Interest:** Compound interest is the money earned from a determined set interest per year. The total amount earned from interest each year is added to the beginning balance, then interest is accumulated once again. This process is repeated each year that you roll the balance over.

**For example:** Let's say you saved \$200 a year at an interest rate of 3% compounded. To find out how much money that interest will equal every year, you have to change the percent into a decimal and then multiply.

$$\$200 \times .03 = \$6$$

So that means  $\$200 + \$6 = \$206$  after year 1

Since this is compounded interest, that means you will continue into year 2 at 3% interest but this time it will be applied to \$206 instead of the starting amount of \$200. This process is repeated until you discontinue your savings plan. The reason compound interest is so awesome is because your money increases even more the longer you save. Compound interest is ever growing!



Compute the following equations in the table to determine the compounded interest over a span of 6 years by just saving \$200 once time. You may use a calculator. Don't forget to change your percent into a decimal.

Starting Amount	Interest Rate	Interest Earned	Year #	Final Equation Total
\$200 X	3% or .03	= \$6	1	\$200 + \$6 = \$206
\$206 X	3% or .03	= \$6.18	2	\$ 206 + \$6.18 = \$212.18
\$212.18 X		=	3	\$212.18 + \$6.36 = \$218.54
X	3% or .03	= \$6.55		
\$225.09 X		= \$6.75	5	\$225.54 + =
\$231.84 X	3% or .03	=		\$231.84 + 6.95 =



**Directions:** Answer the following questions using what you calculated in the table. Show all work and explain your thinking.

1. What is the total balance of this account at the end of year 6?
2. What is the total interest earned by the end of 6 years? What equation did you write to solve this?
3. Which year had the highest interest earned? How much was it?
4. Explain how the interest earned each year steadily increased over time.



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

## The Rule of 72

Let's say you saved up \$2,500.00 and decide to put it in a savings account at the bank. Your account earns 3% interest. After 10 years, you would expect to have earned \$750 in interest. However, you would actually earn much more than that because of compound interest.

Here are the calculations. As you can see, at the end of the 10 years, you would have earned \$859.79 in interest, bringing your balance to \$3,359.79!

Principal	3% Interest	Balance
\$2,500.00	\$75.00	\$2,575.00
\$2,575.00	\$77.25	\$2,652.25
\$2,652.25	\$79.57	\$2,731.82
\$2,731.82	\$81.95	\$2,813.77
\$2,813.77	\$84.41	\$2,898.19
\$2,898.19	\$86.95	\$2,985.13
\$2,985.13	\$89.55	\$3,074.68
\$3,074.68	\$92.24	\$3,166.93
\$3,166.93	\$95.01	\$3,261.93
\$3,261.93	\$97.86	\$3,359.79



Let's say you wanted to double your money. How long would it take you? There's an easy calculation to figure help you figure that out. It's called 'The Rule of 72'. You take 72 and divide it by the interest rate. The answer is how long it will take you to double your money. Using the example above, it would take you 24 years to double your money at 3% interest ( $72 \div 3 = 24$ ). That can seem like a long time, which is why it's important to pay attention to interest rates.

Below are some other interest rates. Calculate how many years it will take to double your money if you had \$100.

Investment	Interest Rate	Years to Double
Savings Account	4%	
Certificate of Deposit	6%	
Certificate of Deposit	7.75%	
Money Market Account	8.5%	
U.S. Treasury Bond	12%	

Source: Financial Fitness for Life, Grades 9-12, Lesson 20

