The Messy Meter

WHAT YOU'LL NEED

- Pen or Pencil
- **An internet-connected smartphone, tablet or computer**
- **A calculator**

Bonus Fun: Interested in interest? Compound interest is when interest is tallied on the principal AND the interest you've already earned on your money. The formula for calculating compounding interest is always $A = P(1 + r/n)^{nt}$, where "p" is the principal; "r" is the rate; "n" is the number of times interest applied per time period; and "t" is the number of time periods elapsed. Use this formula to figure out the total amount on a $10,000 loan that compounds annually over a 3 year period at a rate of 5%. To learn more about compound interest, watch this **video**.

If you're having trouble doing the calculations using the formula, try this online **calculator**.

Banking Your Money

This activity teaches kids the concept of financial interest, and how to calculate it. It assumes a basic level of computer/technology literacy, specifically how to use an internet-connected device and the basic ability to navigate the internet. You'll also need a calculator.

STEPS

1. First, let's understand the definitions of these terms: **principal** and **interest rate**.

2. Next, let's look at this formula to understand how interest is calculated: $I = P(1 + rt)$. Discuss what the letters in this equation represent ("I" is short for interest, "P" is for principal, "R" is for rate, and "T" is for time). Depending on how far along your kids are in math, you may need to explain how to convert decimals (.05) to percentages (5%).

3. Using the formula above and a calculator, calculate the total principal if you saved $1,000 for one year at a 5% interest rate.

4. Once you calculate the yearly interest, use the number of months in a year to figure out how much you earn each month.

5. Using the internet, look up various financial institutions and find out their interest rates on savings accounts. Try different banks and credit unions, and look at the different types of savings accounts they offer. Check to see if the financial institutions have any special savings accounts for young people. What are the features that they offer?

    Hint: Use the number of months in a year. Also note that interest rates change based on the financial conditions of the moment. Look up historical interest rates to understand how high and low they can typically go.

6. Let's look into the rule of 72, which is a clever mathematical shortcut you can use to approximate how long it will take you to double your money, depending on your interest rate. The equation looks like this: Years to double your money = 72 / Your interest rate. For example, if your interest rate is 6%, it will take you 12 years to double your money, because 72 divided by 6 is 12! Try it out! You can learn more about why this works by reading this **article**.

7. Let's use the rule of 72 to estimate what savings from a summer job could turn into overtime. Let's say you save $5,000 doing a combination of yard work and babysitting over the summer. If you assume an average return rate of 5% over the long term, how much would you have in seven years? How about 14? How much money would you have if you kept it invested until you're 65 years old? Draw a chart to help you visualize how the money grows. What do you notice?

Questions to Engage Youth:

How can interest earn you money? When does it make more sense to put your money in a bank? When does it make more sense to keep it at home?

How does interest change how you think about saving your money? From the banks you looked at, which kinds of accounts offer higher interest rates? What are the differences in the other terms of the accounts between those that offer lower interest rates, and those that offer higher ones?

Describe the idea of compounding interest; how does that work? Financial institutions may compound interest semiannually, quarterly, monthly or even daily. Why is it best to have the bank compound interest as often as possible? What is the most important feature of compounding interest?

Explanation:

Interest is an amount that the bank pays you to be able to use your money. Businesses and individuals who borrow money from the bank pay a fee, known as interest, to borrow the money. The bank then passes some of that interest on to you for keeping a savings account with the bank. Different types of accounts offer different interest rates, and may compound that interest on different schedules – the more often it is compounded, the more money your account will accrue. That's because every time your interest compounds, your interest earnings are added to your principal, which means you'll earn more interest in your next term.

Typically, savings accounts will have higher interest rates than checking accounts. Certificate of Deposit accounts, or CDs, might offer even higher interest rates than normal savings accounts. This is possible because the terms of CD accounts specify that you keep your money in the account at a fixed interest rate for a fixed period of time (or term). CDs can be great savings tools, but always remember that if you want to withdraw your money early you will incur a penalty fee. It's always important to research CD rates and terms before you invest your money! You can learn more about CDs here: https://www.nerdwallet.com/blog/banking/cd-certificate-of-deposit/

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