The Hourglass: Compound

Kids Adventure Workbook - Pillars EP03 - Mentor: IVY

“One dollar that earns money, and then that money earns money too. That is the whole trick, and it is the most powerful idea in this entire program. Every number in this book is arithmetic we worked out and showed you, so you can check us with a pencil.”

A PREMIUM LESSON · CHARTS · REAL EXAMPLES · ACTION STEPS · GLOSSARY

WHAT YOU WILL MASTER

- Say out loud what compound interest is - interest that earns interest - and show the difference from simple interest by hand, on paper, in under five minutes.

- Use the Rule of 72 to estimate how long money takes to double, and explain why it is a handy shortcut and not an exact answer.

- Prove with arithmetic that years matter more than dollars, using the age-10-versus-age-20 example you can re-compute yourself.

- Name the four things that interrupt compounding - cashing out, quitting, panicking, and fees - and put a dollar number on what one cash-out costs.

- Explain how the same machine runs backwards when you borrow money, and start one automatic saving habit this week.

What Compounding Actually Is

Here is the whole idea in one sentence: your money makes money, and then that new money starts making money too. That is it. Adults use a fancy phrase for it - compound interest - but the plain version is that you get paid on your money AND on all the money your money already earned. Most people never get this explained clearly, which is why so many grown-ups are surprised by it. You are going to get it today.

There is a boring cousin called simple interest. With simple interest, you only ever get paid on what you first put in. Put in 100 dollars at 10 percent and you collect 10 dollars every single year, forever, no matter how big the pile gets. With compound interest, year two pays you on 110 dollars instead of 100. Year three pays you on 121. The pile keeps getting bigger, so the payment keeps getting bigger, so the pile gets bigger faster. It feeds itself.

One warning before we start doing math. Every rate in this book - 7 percent, 10 percent, 24 percent - is a number we picked so the arithmetic is clean and you can check our work with a calculator. None of these are promises, predictions, or expected returns. Real investments go up AND down, and some years they lose money. What is guaranteed here is only the arithmetic, not the outcome.

ONE HUNDRED DOLLARS AT 10 PERCENT - DONE BY HAND, YEAR BY YEAR

Start with 100 dollars. Assume it grows exactly 10 percent every year - a made-up rate we chose because it is easy to do in your head, not a prediction. Watch the interest payment itself get bigger each year even though nobody added a single new dollar.

Year 1: 100 dollars earns 10 percent, so 100 + 10	**$110.00**
Year 2: 110 dollars earns 10 percent, so 110 + 11	**$121.00**
Year 3: 121 dollars earns 10 percent, so 121 + 12.10	**$133.10**
Simple interest would have paid 10 + 10 + 10	**$130.00**
The compound advantage after only 3 years	**$3.10**
Same 100 dollars after 10 years: compound	**$259.37**
Same 100 dollars after 10 years: simple	**$200.00**

Time Beats Amount (This One Surprises Grown-Ups)

If you asked 100 adults what matters most for growing money, most would say the amount. Save more, get more. It sounds obvious. It is also wrong - or at least, it is the smaller half of the answer.

Here is why. Adding dollars is addition. Ten dollars plus ten dollars is twenty dollars, and that is the end of it. But adding YEARS is multiplication, and multiplication stacks on top of itself. Every extra year does not add a fixed amount - it multiplies whatever is already there. Twenty years is not twice as good as ten years. At 7 percent, ten years roughly doubles your money, and twenty years roughly quadruples it. Forty years multiplies it by about fifteen.

This is the single biggest advantage a kid has over an adult, and it is the only advantage in money that you cannot buy later. A grown-up can get a raise. A grown-up can get a bonus. A grown-up cannot go back and be ten again. You have something they would pay real money for, and right now it is sitting there doing nothing.

ADA PUTS IN 100 DOLLARS. BEN PUTS IN 400 DOLLARS. ADA WINS.

Ada is 10. She puts in 100 dollars one single time and never adds another cent. Ben is 40. He puts in 400 dollars - four times as much - one single time and never adds another cent. Both stop at age 60. Assumed growth rate for the arithmetic: 7 percent a year, chosen so you can check us. Not a prediction.

Ada's money grows for 50 years, so 1.07 multiplied by itself 50 times	**29.457 times**
Ada's ending amount: 100 x 29.457	**$2,945.70**
Ben's money grows for 20 years, so 1.07 multiplied by itself 20 times	**3.8697 times**
Ben's ending amount: 400 x 3.8697	**$1,547.87**
Ada put in this fraction of Ben's money	**one quarter**
Ada ended up with this much more than Ben	**$1,397.83 more**

→ Ada put in 300 dollars LESS than Ben and finished with almost twice as much money. She did not work harder, pick better, or get lucky. She just showed up 30 years earlier. Time did the heavy lifting.

✓ Say this back to a grown-up tonight: 'Dollars add. Years multiply.' If you only remember one sentence from this entire workbook, make it that one.

The Doubling Idea and the Rule of 72 Compounding is easiest to feel if you stop thinking about percentages and start thinking about DOUBLINGS. Forget 7 percent. Just ask: how long until this pile becomes two piles? Then how long until two piles become four? Doublings are the real unit of compounding, and they are much easier to picture than a decimal. There is a shortcut for finding a doubling time, and it is old, famous, and easy enough to do in your head. It is called the Rule of 72. Take 72 and divide it by the growth rate. The answer is roughly how many years one doubling takes. At 6 percent: 72 divided by 6 equals 12 years. At 8 percent: 72 divided by 8 equals 9 years. At 12 percent: 72 divided by 12 equals 6 years. That is the whole rule. Be honest about what it is, though: it is an estimate, not the exact answer. The real math uses logarithms and gives 11.90 years at 6 percent where the shortcut says 12, and 9.01 years at 8 percent where the shortcut says 9. The shortcut is closest between about 6 and 10 percent and gets sloppier at the extremes. Chart 1 in this book shows exactly how close it is at seven different rates - we computed both columns so you can see the error for yourself. THE PENNY THAT DOUBLES EVERY DAY FOR 30 DAYS The classic doubling puzzle, and the best 30 seconds of math anyone will ever show you. Day 1 you have one cent. Every single day the pile doubles - 30 doublings in all. Day 1: $0.01 · Day 10: $5.12 · Day 20: $5,242.88 · Day 30: $5,368,709.12 Five million dollars, from a penny, because doubling stacks growth on growth. Compounding is the same machine running slower - which is why time matters more than amount. THE PENNY THAT DOUBLES EVERY DAY FOR 30 DAYS CashQuest Kids · cashquestkids.com Schools make employees. We raise owners. The classic doubling puzzle, and the best 30 seconds of math anyone will ever show

Starting at 10 Versus Starting at 20 - Let Us Actually Compute It

Ten years. That is the whole difference in this section. Two kids, same amount every month, same assumed growth rate, same finish line. One starts at 10 and one starts at 20. Everybody guesses the early starter wins. Almost nobody guesses by how much.

Ada starts at age 10 - which realistically means a parent or guardian opens a custodial account and puts in 25 dollars a month. Ben starts the exact same habit at age 20, with his own first paycheck. Both keep going until 65 and neither ever raises the amount. Ada therefore puts in 3,000 dollars more than Ben across her whole life - that is 25 dollars times 12 months times 10 extra years.

Three thousand extra dollars in. Now look at what comes out. And before you do, remember: 7 percent is our assumed arithmetic rate, picked so you can verify every line with a calculator. It is not what any investment promises, and real results swing wildly from year to year.

SAME 25 DOLLARS A MONTH. TEN YEARS APART. ASSUMED 7 PERCENT.

Both kids save 25 dollars every month until age 65, growing at an assumed 7 percent a year compounded monthly. Ada makes 660 monthly deposits (age 10 to 65). Ben makes 540 (age 20 to 65). Nothing else differs.

Ada - total dollars she actually deposited	**$16,500**
Ada - balance at 65	**$194,873**
Ben - total dollars he actually deposited	**$13,500**
Ben - balance at 65	**$94,815**
Extra money Ada put in over her whole life	**$3,000**
Extra money Ada ended up with	**$100,058**
What each extra dollar Ada deposited turned into	**about $33.35**
What Ben must save monthly to match Ada's ending number	**$51.38 (about 2x)**

→ Ada deposited 3,000 more dollars and finished with 100,058 more dollars. Ben can still catch up - but only by saving 51.38 a month instead of 25, which is more than double, forever. Ada bought that with nothing but being early.

⚠ Ben is not in trouble - starting at 20 is genuinely great, and starting at 40 beats starting never. But notice what Ben cannot do: he cannot go get those ten years back at any price. Years are the one thing that is not for sale.

Boring, Boring, Boring, WOW - The Real Shape of the Curve Here is the part that makes people quit, and it is worth knowing about in advance so it does not fool you. Compounding looks broken at the beginning. It looks like it is not working. For years and years it looks like a scam. Follow Ada's account from the last section, decade by decade. At age 20 she has put in 3,000 dollars and has 4,327. That is nice, but it is not magic - most of it is just her own deposits. At 30 she has 13,023. At 40, 30,499. At 50, 65,620. At 60, 136,202. Then the last five years alone add nearly 59,000 more. The curve barely lifts off the ground for two decades and then goes nearly vertical. The reason is simple once you see it: growth is a percentage of the pile, so a big pile grows in big chunks. Seven percent of 4,000 dollars is 280 dollars. Seven percent of 136,000 dollars is 9,520 dollars. Same rule, same rate, wildly different size. The early years are not the payoff - they are the ticket that lets you be there for the late years. WHERE ADA'S MONEY ACTUALLY COMES FROM: by 60, Ada put in 15,000 dollars of her 136,202 - that is 25 dollars a month for 50 years. Compounding built the other 121,202. Deposits start the story; time writes the ending. CashQuest Kids · cashquestkids.com Schools make employees. We raise owners. WHERE ADA'S MONEY ACTUALLY COMES FROM

What Interrupts Compounding

Compounding has one requirement and it is not a clever one: you have to leave it alone. Every year you interrupt it, you do not just lose that year - you lose every doubling that year would have led to. Four things break it.

One: cashing out. You take the money and spend it. Two: quitting - you stop adding, usually because it feels too slow. Three: panicking - the market drops, it feels awful, and selling feels like safety, so people sell low and buy back later at higher prices. Four: fees. A fee is a small slice taken every single year, and it compounds against you exactly the way growth compounds for you.

Cashing out is the expensive one, because the number you take out is never the real number. The real number is what that money would have grown into. Here is what it costs.

THE 13,000 DOLLAR CASH-OUT THAT ACTUALLY COST 149,847

Ada's account again, 25 dollars a month at an assumed 7 percent. At age 30 she has 13,023 dollars. She takes all of it out and spends it, then keeps right on saving 25 a month until 65, exactly as before.

Ada's balance at age 30 - the amount she cashes out	**$13,023**
Ada's balance at 65 if she never touched it	**$194,873**
Ada's balance at 65 after cashing out and restarting from zero	**$45,026**
Cost of the cash-out	**$149,847**
That 13,023 would have multiplied over 35 more years by	**11.507 times**
What every $1 she spent at 30 cost her at 65	**$11.51**

→ She spent 13,023 dollars and it cost her 149,847. Not because anybody charged her a penalty - just because those dollars had 35 years of doubling left in them and she spent the doublings along with the dollars.

⚠ This is the money version of digging up a seed to see if it is growing. The digging is what stops it. Long-term money needs a name, a place, and a rule that it is not for this year.

When Compounding Turns Around and Bites: Borrowing Now the part almost nobody teaches kids. Compounding is not a friendly machine that likes you. It is a neutral machine, and it runs in whatever direction it is pointed. Point it at money you own and it grows for you. Point it at money you owe and it grows against you - and when you owe money, it usually runs faster. When you borrow with a credit card, the lender charges a rate called APR. Interest gets added to what you owe, and then next month you owe interest on the interest. That is the exact same machine from page one, aimed the other way. The difference is the speed: a savings-type investment might compound around single digits, while credit card debt commonly compounds at rates in the twenties. Same machine, much bigger dial. Below is a worked example at an assumed 24 percent APR. We picked 24 percent because it makes the arithmetic clean - real card rates vary a lot by card and by person, so check the actual number on any real agreement. What does not vary is the shape of what happens. A 1,000 DOLLAR LAPTOP, PAID THE SLOW WAY AND THE FAST WAY Buy a 1,000 dollar laptop on a credit card at an assumed 24 percent APR, which is 2 percent per month. Path A: pay only the minimum, assumed to be 2 percent of the balance with a 25 dollar floor - a common structure. Path B: pay a flat 50 dollars every month until it is gone. Nothing else is bought on the card. One single month of interest on $1,000 at 24% APR | $20.00 Path A, minimum only (2% of balance, $25 floor): 82 months - nearly 7 years - and about $2,032 all-in for the $1,000 laptop. Path B, a flat $50 a month: 26 months and about $1,290 all-in. Same laptop. The slow way pays roughly double. One single month of

The Habit to Start This Week

Everything in this book comes down to one move: get a small amount of money into a place where it can sit for a very long time, and then leave it there. Not a big amount. A small, boring, automatic amount. Automatic beats large, because automatic keeps going on the weeks you forget, and large usually does not last a year.

Two dollars a week is 104 dollars a year. That is genuinely small - it is less than a snack habit. But because you are young, the years do something to it that the dollars never could. Look at the table, then notice the last line: after 50 years you deposited 5,200 dollars total and the growth added roughly eight times that on top.

You will need a grown-up for the real version, because kids cannot open investing accounts alone - a parent or guardian opens a custodial account for you. That is your one homework assignment from this episode: show an adult your doubling ladder and ask whether your family has an account where money is allowed to sit for a very long time. That single question is the actual beginning. This workbook is education only - it is not financial or investment advice, and every family should check their own situation with a licensed professional before deciding anything.

TWO DOLLARS A WEEK, LEFT ALONE

Two dollars a week is 104 dollars a year. Assume it is deposited once a year and grows at an assumed 7 percent a year - our arithmetic rate, not a promise or an expected return. Real investments rise and fall and can lose money.

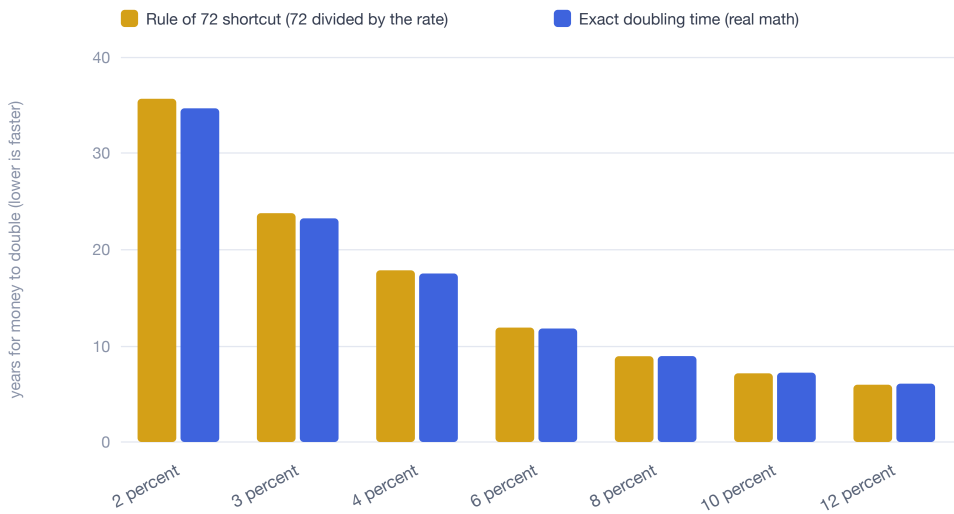
After 10 years - you deposited $1,040, it becomes	**$1,437**
After 20 years - you deposited $2,080, it becomes	**$4,264**
After 30 years - you deposited $3,120, it becomes	**$9,824**
After 40 years - you deposited $4,160, it becomes	**$20,762**
After 50 years - you deposited $5,200, it becomes	**$42,279**
Growth on top of your deposits at 50 years	**$37,079**

→ Two dollars a week. No raise, no bonus, no clever trick, no lucky pick. Just a tiny amount and a very long time. That is the entire cheat code, and it is available to you today in a way it will never be available to the adults reading over your shoulder.

✓ Do the smallest version tonight: label a jar or envelope with the year you turn 65 and put one real dollar in it. The dollar barely matters. Starting the habit while you still have every single year in front of you is the whole point.

> **Say out loud what compound interest is - interest that earns interest - and show the difference from simple interest by hand, on paper, in under five minutes.**

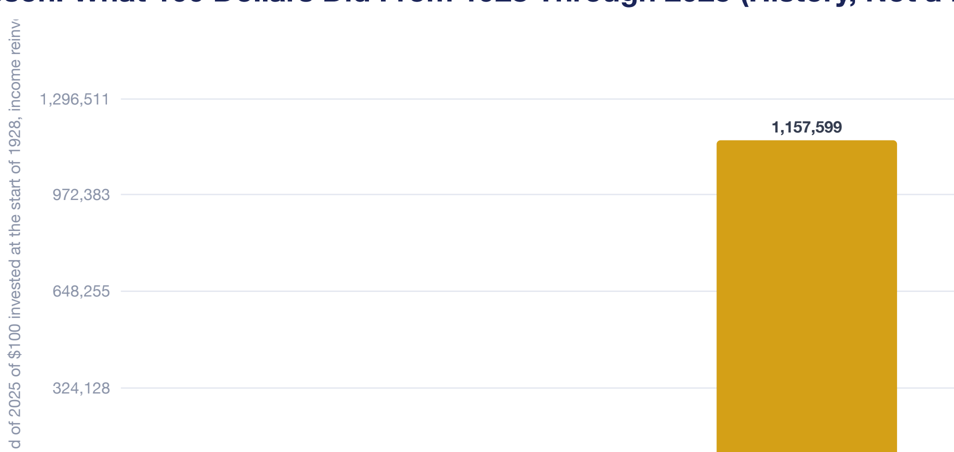
The Rule of 72: Handy Shortcut vs. the Exact Math



Both columns are arithmetic we computed and are showing you on purpose, so you can check every bar with a calculator. The shortcut is 72 divided by the rate. The exact answer is log(2) divided by log(1 + rate), which is the real doubling formula. Notice how close they sit between 6 and 10 percent - that is the range the shortcut was designed for - and how the shortcut drifts about a full year off at 2 percent. The rates on the bottom axis are assumed inputs chosen to demonstrate the rule; they are not predictions, promised returns, or expected returns from any investment. Source: arithmetic computed by CashQuest Kids for Pillars EP03 (2026); anyone can reproduce every value with a calculator, and families can double-check compound growth free at the SEC's Compound Interest Calculator on investor.gov (verified live).

Source: Arithmetic computed by CashQuest Kids for Pillars EP03: The Hourglass. Shortcut column = 72 / rate. Exact column = log(2) / log(1 + rate), rounded to two decimals: 2% = 35.00y, 3% = 23.45y, 4% = 17.67y, 6% = 11.90y, 8% = 9.01y, 10% = 7.27y, 12% = 6.12y. Every value is reproducible on any calculator. Rates are illustrative inputs, not forecasts. Free public checking tool: SEC Office of Investor Education and Advocacy, Compound Interest Calculator, investor.gov (fetched and verified). · CashQuest Kids (arithmetic); checking tool by U.S. Securities and Exchange Commission, Investor.gov (2026) · https://www.investor.gov/financial-tools-calculators/calculators/compound-interest-calculator

History Lesson: What 100 Dollars Did From 1928 Through 2025 (History, Not a Prediction)



2,578 7,753 0 US stocks (S&P 500) th US Treasury bills US Treasury bonds Read this as a history book, never as a forecast. Over the 98 calendar years 1928 through 2025, 100 dollars placed in short-term US Treasury bills ended at $2,578.30; in 10-year US Treasury bonds at $7,752.88; and in US stocks (S&P 500, dividends reinvested) at $1,157,598.95 - ending values taken directly from Professor Aswath Damodaran's public NYU Stern dataset and verified at the source. From those endpoints WE computed the average yearly compound growth over the 98 years: about 3.37 percent for T-bills, 4.54 percent for T-bonds, and 10.02 percent for stocks - our own arithmetic on their numbers, shown so you can check it. Two honest warnings: this is what already happened, not what will happen, and the stock line included brutal stretches - years where money fell hard and took a long time to recover. Treasury bills ended at $2,578.30; in 10-year US Treasury bonds at $7,752.88; and in US stocks (S&P 500, dividends reinvested) at $1,157,598.95. Those three ending values are taken directly from Professor Aswath Damodaran's public NYU Stern dataset (updated January 5, 2026) and were verified at the source. From those verified endpoints WE computed the average yearly compound growth over the 98 years: about 3.37 percent for T-bills, 4.54 percent for T-bonds, and 10.02 percent for stocks - our own arithmetic on their numbers, shown so you can check it. Two honest warnings that matter more than the big number: this is what already happened, not what will happen, and the stock line included brutal stretches - years where money fell by large amounts and took a long time to CashQuest Kids · cashquestkids.com

STORY BREAK

The Hourglass and the Two Jars

IVY
Every grain is one year. Watch the first ones fall.

A quiet workshop full of clocks and jars. IVY, the calm Investor Lab mentor in a long coat covered in tiny gear-shaped buttons, flips over an enormous hourglass taller than she is. Ada, age 10, stands on a stool watching the first few grains trickle down, arms crossed, distinctly unimpressed. A chalkboard behind them reads: EACH GRAIN = ONE YEAR.

ADA
Nothing is happening. Is the hourglass broken?

1. Every grain is one year of your life. Ada gets fifty-five of them.

IVY
Your dollar earned a dime. Now the dime earns too.

Close on a glass jar labeled ADA holding a single cartoon dollar bill with a friendly face. A small dime pops into the jar beside it. Then the dime grows its own tiny arms and reaches out to pull in a second dime. Ada's eyes have gone completely round. IVY leans in from the edge of the panel, unbothered, sipping tea.

ADA
Wait. My money just hired my money?

2. The dollar earned a dime. Then the dime went to work too.

BEN
I start at twenty. Ten years cannot matter much.

Split panel. Left side: Ada at 10 dropping a coin into her jar, with a long line of hourglass grains stacked behind her. Right side: her cousin Ben at 20 dropping an identical coin into an identical jar, with a visibly shorter stack of grains behind him. Both jars are labeled 25 DOLLARS A MONTH. IVY stands in the middle seam holding a calculator.

IVY
Same twenty-five dollars monthly. Ada just has more grains.

3. Same jar, same monthly deposit, ten years of difference.

IVY
Three thousand more dollars in. One hundred thousand more out.

Years later, warm evening light. Two jars sit on the workshop bench at age 65. Ben's jar is full and respectable. Ada's jar is more than twice as tall and has needed a second jar stacked on top, held together with tape. The last grain drops through the empty hourglass. Ada, now grown, and IVY look at the bench together.

ADA
The grains that fell first did the most work.

4. Three thousand extra dollars deposited. One hundred thousand extra dollars out.

CHECK YOURSELF

How well did it stick?

- [ ] **What is the difference between simple interest and compound interest? Use the 100 dollar example to prove it.**
  Simple interest only ever pays you on what you first put in. Compound interest pays you on your money AND on the money your money already earned. With 100 dollars at 10 percent: compound gives 110, then 121, then 133.10 after three years, while simple gives a flat 130. The 3 dollars and 10 cents gap IS compounding. By year 10 that same gap has grown to 59.37 - compound reaches 259.37 while simple is stuck at 200.

- [ ] **Ada put in 100 dollars at age 10. Ben put in 400 dollars at age 40. Both stopped at 60. Who ended up with more, and what does that prove?**
  Ada, and it is not close. At an assumed 7 percent, Ada's money multiplied 29.457 times over 50 years and ended at 2,945.70. Ben's multiplied 3.8697 times over 20 years and ended at 1,547.87. Ada deposited one quarter as much money and finished with about twice as much. It proves the rule: dollars add, but years multiply - so time beats amount.

- [ ] **Money grows 8 percent a year. Use the Rule of 72 - about how often does it double? What about 6 percent? And why do we say 'about'?**
  At 8 percent, 72 divided by 8 equals 9 years per doubling. At 6 percent, 72 divided by 6 equals 12 years. We say 'about' because the Rule of 72 is a shortcut, not the exact formula. The exact math gives 9.01 years at 8 percent and 11.90 years at 6 percent - very close in that range, but the shortcut drifts further off at very low or very high rates, which is exactly what Chart 1 in this book shows.

Check yourself, continued

- [ ] **Ada saves 25 dollars a month from age 10 to 65. Ben does the same thing from 20 to 65. Ada only deposited 3,000 dollars more than Ben over her whole life. How different are their ending numbers?**
At an assumed 7 percent, Ada ends at 194,873 and Ben ends at 94,815 - a gap of 100,058 dollars from just 3,000 extra dollars deposited. Each extra dollar Ada put in turned into about 33 dollars and 35 cents. For Ben to match her ending number he would have to save 51.38 a month instead of 25, which is more than double, every month, for 45 years. Ten years of time was worth more than doubling the deposit.

- [ ] **Your friend buys a 1,000 dollar laptop on a credit card and pays only the minimum. What happens, and what should they do instead?**
At an assumed 24 percent APR with a typical minimum payment, it takes 82 months - almost seven years - and they pay 2,031.90 in total, meaning 1,031.90 of interest on a 1,000 dollar laptop. They pay for it twice. Paying a flat 50 dollars a month instead clears it in 26 months for 1,289.87 total, with only 289.87 of interest - saving 742.03. It is the same compounding machine from page one, just pointed at them instead of for them.

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How well did it stick?

- [ ] **Ada saves 25 dollars a month from age 10 to 65. Ben does the same thing from 20 to 65. Ada only deposited 3,000 dollars more than Ben over her whole life. How different are their ending numbers?**
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- [ ] **Your friend buys a 1,000 dollar laptop on a credit card and pays only the minimum. What happens, and what should they do instead?**
At an assumed 24 percent APR with a typical minimum payment, it takes 82 months - almost seven years - and they pay 2,031.90 in total, meaning 1,031.90 of interest on a 1,000 dollar laptop. They pay for it twice. Paying a flat 50 dollars a month instead clears it in 26 months for 1,289.87 total, with only 289.87 of interest - saving 742.03. It is the same compounding machine from page one, just pointed at them instead of for them.

WORDS TO KNOW

Compound interest
Interest that earns interest. You get paid on your original money AND on all the money your money already earned - so the payments themselves keep getting bigger even if you never add another dollar.

Simple interest
The boring cousin of compound interest. It only ever pays you on the amount you first put in, so the payment is exactly the same every year no matter how large the pile grows.

Principal
The starting amount - the money you actually put in yourself. In Ada's account the principal at age 65 was 16,500 dollars; everything above that was growth.

Return
The percentage a pile of money grows in one year. A 7 percent return on 100 dollars is 7 dollars. Real returns change every year, can be negative, and are never promised in advance.

Doubling time
How many years it takes for an amount to become two times as big. Doublings are the easiest way to picture compounding, because each one is simply 'the pile, again.'

Rule of 72
A head-math shortcut for doubling time: divide 72 by the growth rate. At 8 percent, 72 divided by 8 is about 9 years per doubling. It is an estimate, most accurate between roughly 6 and 10 percent.

Time horizon
How many years your money gets to grow before you need it. It is the single biggest advantage a kid has, and it is the one thing in money nobody can buy back later.

APR
Annual Percentage Rate - the yearly rate a lender charges you for borrowing. This is compounding aimed at you instead of for you, which is why a 24 percent APR does damage so much faster than a 7 percent return builds.

Custodial account
An investing account a parent or guardian opens and manages on behalf of a kid, because kids cannot legally open one alone. It is the normal on-ramp for starting early.

Index fund
A single simple fund that owns a tiny slice of hundreds of companies at once, instead of betting on one. Kids meet this properly in the full Investor Lab series with IVY.

SOURCES & MATERIALS USED

- CashQuest Kids, Pillars EP03: The Hourglass (2026) - Kids Adventure Workbook, mentor IVY. Source of all worked examples and every computed figure in this book, including: the 100-dollar simple-versus-compound tables at 10 percent; the Ada-versus-Ben single-deposit comparison at an assumed 7 percent; the penny-doubling table through day 30; the 25-dollars-a-month age-10-versus-age-20 comparison at an assumed 7 percent compounded monthly (194,873 versus 94,815); the decade-by-decade balance table; the age-30 cash-out cost of 149,847; the 1,000-dollar credit card example at an assumed 24 percent APR; and the 2-dollars-a-week table. Every rate used is an assumed arithmetic input chosen so readers can verify the math, not a promised, predicted, or expected return. Educational use only - not financial, investment, or tax advice. — CashQuest Kids (2026). https://cashquestkids.com
- Annual Returns on Stock, T.Bonds and T.Bills, 1928 through 2025 (data page updated January 5, 2026; page heading still displays '1928-2024' while the table runs through 2025). Chart 2 figures verified at the source: value at the end of 2025 of 100 dollars invested at the start of 1928 - S&P 500 with dividends reinvested $1,157,598.95; 10-year US Treasury bonds $7,752.88; 3-month US Treasury bills $2,578.30. The 98-year compound average growth rates cited alongside them (stocks 10.02 percent, bonds 4.54 percent, bills 3.37 percent) are CashQuest Kids arithmetic computed from those verified endpoints, not figures quoted from the source. Presented strictly as historical record; past performance does not guarantee future results. — Aswath Damodaran, NYU Stern School of Business (2026). https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html
- Compound Interest Calculator - free public tool from the SEC's Office of Investor Education and Advocacy, offered here so families can independently re-run every growth figure in this workbook. Page verified live; it states its purpose as determining how much money can grow using the power of compound interest, and links related investor-education material covering compound interest and the Rule of 72. — U.S. Securities and Exchange Commission, Investor.gov (2026). https://www.investor.gov/financial-tools-calculators/calculators/compound-interest-calculator

MY NOTES & NEXT MOVES