Head Start Lesson Guide

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Head Start is a free investing game for students 13 and up at calcwize.com/academy/head-start. Players live through the real economy from 2006 to 2026, ages 16 to 36, and try to grow their money more than the Index Bot does. It takes about 20 to 30 minutes, and it collects no data.

At a glance

Grades	7 to 12 (ages 13 and up)
Time	One 45-minute class, or two shorter sessions
Difficulty	Easy (the default) stops the game for every decision. Medium and Hard keep time moving at payday. Start students on Easy.
Devices	Any browser: Chromebooks, laptops, tablets, phones
Prep	5 minutes: play one round yourself and print the worksheet
Cost and accounts	Free. No sign-up, no student data collected, no ads
Topics	Saving, investing, and managing risk, three of the six topic areas in the National Standards for Personal Financial Education (2021)
Big idea	Starting early beats picking winners

Students never see calendar dates in the game. Their screen says "Year 3 of 20" and their age. The real dates are in the game timeline below, for your reference.

How a round plays

The player makes two setup choices, their start age and a difficulty, then makes money decisions every 6 months for 20 years.

1. **Pick a start age (16 to 30) and a difficulty.** Before that age, the money gets spent, so a student who picks 23 jumps straight to year 8 (November 2013). The skipped years show as gray on the chart. Easy, the default, stops the game for every decision. Medium (1.5x speed, 4 pauses) and Hard (2.5x speed, no pauses) keep time moving at payday, but cards always stop the game.
2. **Payday every 6 months.** $600 (about $100 a month) lands in pocket cash. The first payday adds $500 from a summer job.
3. **Split the money.** The player puts pocket cash into any investment that's unlocked. Cash left in their pocket slowly loses value to inflation.
4. **Investments unlock as the game goes.** Savings and an index fund are open at the start. CDs open 6 months in, a single stock opens 12 months in, and Bitcoin opens in January 2016. Each one opens with a 3-slide lesson.
5. **Life happens.** Cards pop up on real dates: a car repair, the 2009 crash, a 401(k) match, a raise, Bitcoin hype, a betting app, a layoff, and a meme coin. Players pay with pocket cash or "find funds" by pulling money from their savings or investments.
6. **Beat the Index Bot.** The Index Bot starts at the same age, puts every payday into an index fund, says no to every choice card, and never sells. The results show both final totals side by side.

A game with fast-forward on takes about 10 minutes. With every lesson and card read closely, it takes 20 to 30.

Lesson plan (45 minutes)

Students play twice, once starting at 16 and once at an age they choose, then compare. The game does the teaching; your job is the debrief.

Time	Step	What you do
5 min	Warm-up	Ask: "You get $100 a month to save starting today. Does it matter if you start now or in 10 years?" Take a quick show of hands, and don't give the answer yet.
15 min	Round 1: start at 16	Students open calcwize.com/academy/head-start, click through the intro, and play on Easy starting at 16. They fill in Part 1 of the worksheet as they go. Fast-forward is fine.

Time	Step	What you do
10 min	Round 2: their choice	Students play again starting at any age from 17 to 30 and fill in Part 2.
15 min	Debrief	Go back to the warm-up question, then use the discussion questions below. Have two or three students share who beat the Index Bot and how.

Before class: play one round yourself so you know the cards, and print or share the worksheet.

If you have more time:

- **Day 2, the Index Bot challenge:** students play a third time on Medium or Hard with one goal, beating the Index Bot. Time keeps moving at payday, so students quickly see why turning on "Repeat this split every payday" (automatic investing) helps. Compare strategies as a class.
- **Emergency fund mini-lesson:** students who kept no cash had to sell investments for the car repair and the layoff. Connect this to building an emergency fund first.
- **Real numbers:** students try the CalcWize Retirement Calculator with their own age and a monthly amount they could actually save.

The investments

Every price and interest rate in the game is what really happened from November 2006 to October 2026, adjusted for inflation.

Investment	Opens	What drives it in the game	Risk shown to players
Pocket cash	Start	No interest. Prices rose about 2.6% a year, so it loses about 40% of its buying power over 20 years	Not an investment
Savings account	Start	The 3-month U.S. Treasury bill rate: close to 0% in 2009–2015 and 2020–2021, over 5% in 2023–2024	Lowest risk

Investment	Opens	What drives it in the game	Risk shown to players
Stock index fund	Start	The S&P 500 with dividends reinvested	Moderate risk
CDs	6 months in	The 1-year Treasury rate, locked for 12 months, then renewed. Pulling money out early costs the interest earned that year	Lowest risk
One company stock	12 months in	A made-up company with a bumpy yearly path, built to show how risky a single stock is	High risk
Bitcoin	January 2016	Real month-end prices. $1 put in in January 2016 grew to about $148 by October 2026, after inflation	Extreme risk
401(k)	Only if the player joins in 2012	Invested in the index fund. The employer adds $300 every payday. It can't be withdrawn	Moderate risk

The savings and CD rates use Treasury rates as a simple, public stand-in. Real banks paid more or less than this, depending on the bank and the year.

Bitcoin's history is real, and it means a student who goes all in on Bitcoin in 2016 can finish with millions. The unlock lesson, the info card, and a "luck check" on the results screen all make the same point: nobody knew this in 2016, most coins from that time are worth almost nothing, and it's very unlikely to happen again. That makes it a strong discussion topic (see below).

How the numbers were made

All amounts are in today's dollars (October 2026), so a 2006 dollar and a 2026 dollar can be compared directly.

- **Inflation:** cash, savings, and CDs are adjusted by the Consumer Price Index. Each game year's inflation is spread evenly over its 12 months, so cash shrinks steadily instead of wobbling with seasonal price swings. Cash only grows in year 3, when

prices really did fall after the 2008 crash. The stock index fund and Bitcoin use returns and prices that are already adjusted for inflation.

- **CDs:** each deposit is its own 1-year CD at that month's rate. If a student pulls money out early, they get it back minus the interest earned that year.
- **Find funds:** when a cost is bigger than pocket cash, students choose what to pull from. Money pulled out stops growing. If everything together still isn't enough, the shortfall comes out of the next payday.
- **The Index Bot:** the same start age, every payday into the index fund, no to every choice card, never sells. Starting at 16, it finishes with $75,073. Starting at 26, it finishes with $20,821.
- **Projection to 65:** an estimate that keeps adding $100 a month at a steady 7% a year after inflation. Real markets aren't that smooth.

The formulas. The game converts every past dollar into today's dollars using the Consumer Price Index (CPI). Here, today means October 2026.

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\text{Today's dollars} = \text{Past dollars} \times
\frac{\text{CPI}_{\text{Oct 2026}}}{\text{CPI}_{\text{then}}}
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Each month k, savings grows by its interest rate r (the 3-month Treasury bill rate, in percent per year) and shrinks by that game year's inflation, spread evenly over 12 months. CDs work the same way, with r locked for 12 months at the 1-year Treasury rate.

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B_{k+1} = B_k \left(1 + \frac{r_k}{1200}\right)
\left(\frac{\text{CPI}_{\text{start of year}}}{\text{CPI}_{\text{end of
year}}}\right)^{1/12}
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Taking money out of a CD m months into its year returns the value without that year's interest:

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\text{Payout} = \frac{\text{Value}}{\left(1 + \frac{r}{1200}\right)^{m}}
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The index fund and the 401(k) grow by the S&P 500's real (after-inflation) total return R for that month: B(k+1) = B(k) × (1 + R(k)). Bitcoin buys units at that month's price in today's dollars, and its value is units × price. The betting app bets 25% of its balance each week; a win pays $0.91 per $1 bet and a loss costs the full $1.

Why one fixed time period. Every student lives through the same 20 years (Nov 2006 to Oct 2026), so they face the same crashes and the same cards, and the class can compare results directly. Pay is a flat $600 every 6 months, so the only differences between

students are when they started and what they chose.

For reference, here's how simple plans finish for a 16-year-old starter who says no to every choice card:

Plan	Total at 36
Every payday into the index fund (the Index Bot)	$75,073
Panic-sell in the 2009 crash, buy back in 2011	$66,278
Half index fund, half savings	$50,393
All CDs	$20,265
All savings	$20,191
Keep it all as cash	$16,427
All one company stock	$8,346

A student who saves $24,200 of pay over 20 years and spends $2,300 on surprises ends up with about $20,000 in savings or CDs. Inflation ate all of the interest. That's one of the game's most surprising results.

What students learn

The main lesson is that starting early matters more than picking winners. In the game, starting at 16 instead of 26 is worth about $54,000 by age 36, with the same $100 a month.

What students practice

- Splitting money between safety (cash, savings, CDs) and growth (index fund)
- Keeping some cash for emergencies so they don't have to sell in a crash
- Spotting hype: the food truck, Bitcoin at its 2017 peak, the meme coin, and the betting app
- Seeing why a 401(k) match is free money and why a raise is worth saving

Discussion questions

1. What did starting at your age cost or earn you, compared with starting at 16?
2. Did you beat the Index Bot? What did you do differently?
3. Did a card ever force you to sell investments? What would have prevented that?

4. Your savings account never went down. Why did it still lose value?
5. If you made a lot from Bitcoin, was that a good decision or good luck? How can you tell the difference?
6. You won almost half your bets on the betting app and still lost money. Why?
7. On Medium or Hard, did payday ever catch you before you split your money? What did that cost? (For reference: depositing 3 months late every payday ends about $2,300 behind the Index Bot over 20 years, $72,798 vs. $75,073.)

Privacy: no accounts, no names, no data collected, no ads, and no tracking. Nothing a student does leaves their browser.

Student worksheet

The student worksheet is a separate handout, so you can print or share it without the answer key. Download it at calcwize.com/academy/head-start/worksheet.pdf. It has 15 questions in three parts: playing from age 16, playing from an age the student picks, and reflection. The answers are in the next section.

Worksheet answer key

Most answers depend on each student's choices. These are the fixed facts and what to listen for.

#	Answer or what to look for
1	Any split works. Push students to explain why (safety vs. growth).
2	The car repair, $800. Students with pocket cash or savings paid without selling. Students fully invested had to sell investments, in the middle of the financial crisis.
3	Holding on wins. Panic-selling and buying back two years later costs about $8,800 for a 16-year-old starter.
4	Money is locked for a year. Taking it out early loses the interest it earned.

#	Answer or what to look for
5	The job adds $300 every payday. For a 16-year-old starter that's $8,700 of free money by the end, which grows to much more.
6	Bitcoin fell 81% from its peak. Students who bought at the year-12 hype and held ended up about 3 times their money after inflation. Students who sold in year 13 locked in the loss.
7	8 of 17 bets won, $193 cashed out of $500. Winning almost half your bets still loses money, because a win pays less than a loss costs.
8	Starting at 16, the Index Bot finishes with $75,073.
9	Depends on the student. Beating the Index Bot usually means joining the 401(k), saving the raise, and never selling in a crash.
10–12	Use the table below. "Starting earlier was worth" = the Index Bot at 16 minus the Index Bot at the student's age.
13	Prices rose about 2.6% a year. The savings rate was near 0% for many of those years, so money in savings bought less and less.
14	Look for: nobody could know ahead of time, Bitcoin crashed by 70% or more twice, and most coins from back then are worth almost nothing now.
15	Any rule backed by the game, such as "start now", "keep an emergency fund", "take the match", or "don't sell in a crash".

The Index Bot's final total by start age

Start age	16	18	20	22	24	26	28	30
Total at 36	$75,073	$69,361	$52,508	$39,281	$28,781	$20,821	$13,996	$11,976

Odd ages: 17 $69,098 · 19 $59,922 · 21 $46,017 · 23 $33,492 · 25 $24,734 · 27 $17,099 · 29 $11,055. Starting at 18 edges out 17, and 30 edges out 29, because of when the crashes and the layoff hit. That's a good discussion point about luck vs. time.

Game timeline

Students see game years only. Ages assume a start at 16. CDs and the single stock unlock 6 and 12 months after each student's own start, so they aren't listed here.

Game year	Age	What happens	Real date
1	16	Game starts. Savings and the index fund are open	Nov 2006
2	17	Financial crisis marker. Car repair card ($800)	Sep–Oct 2008
3	18	Market bottom marker. Sell or hold card	Mar 2009
4	19	Food truck card ($1,000)	Jun 2010
6	21	401(k) match card. The food truck closes	Jan and Jun 2012
7	22	Back to even marker	Mar 2013
9	24	Raise card	Jun 2015
10	25	Bitcoin unlocks	Jan 2016
12	27	Bitcoin hype card ($1,000 at the peak)	Dec 2017
13	28	Bitcoin crash card. Rate-hike dip marker. Betting app card ($500)	Dec 2018, Sep 2019
14	29	Betting app cashes out. COVID crash marker. Layoff card ($1,500)	Feb–Mar 2020
16	31	Meme coin card ($1,000). Inflation spike marker	Nov 2021, Jun 2022
19	34	Tariff shock marker	Apr 2025
20	36	Game ends	Oct 2026

Vocabulary

Term	Meaning
Pocket cash	Money you haven't put anywhere yet
Inflation	Prices rising over time, so the same dollar buys less
Interest	What a bank pays you for keeping money there
Savings account	A bank account that pays interest and never drops in value
CD (certificate of deposit)	Money left at a bank for a set time, usually a year, at a locked rate
Index fund	One investment that owns small pieces of hundreds of companies
Stock	A small piece of one company
Bitcoin	A digital currency with no company or government behind it
401(k)	A retirement account through your job, often with a match
Employer match	Money your job adds when you put money into your 401(k)
Risk	How much an investment's value can swing up and down
Net worth	Everything you own, added up
Emergency fund	Cash set aside so a surprise bill doesn't force you to sell investments
Compound growth	Growth on top of earlier growth, which is why starting early matters so much

Sources

1. Robert Shiller, U.S. stock market data (ie_data): S&P 500 real total returns and the Consumer Price Index, monthly

2. FRED, 3-Month Treasury Bill rate (TB3MS): savings account rate
3. FRED, 1-Year Treasury rate (GS1): CD rate
4. bitbo.io Bitcoin price history: month-end closes, with December 2017 at its $19,345 peak