

Handout 02.12: Compound Growth Table

Name: _____ Date: _____ Partner: _____

The rate on this sheet is 5 percent a year so the math is clean. Real savings accounts in 2026 pay from under 1 percent at big banks to about 4 percent at online banks [update].

My guess: \$20 a week for 30 years at 5 percent = \$_____

Part A: Why save, and where

Three reasons to save, with an example of each:

Reason	My example
1. A goal	
2. An emergency fund	
3. The future	

Jar versus savings account:

	A jar or a drawer	A savings account
Does it grow?		
Is it protected if it is lost or stolen, or the bank fails?		
How easy is it to raid?		
Who can open one?		

Pay yourself first means _____

Part B: Simple versus compound (copy from the slide)

\$1,000 at 5 percent.

Simple interest: \$50 a year, every year. After 3 years: $\$1,000 + \$150 = \$$ _____

Compound interest:

Year 1: $\$1,000 \times 0.05 = \$$ _____ interest. End: $\$$ _____

Year 2: $\$$ _____ $\times 0.05 = \$$ _____ interest. End: $\$$ _____

Year 3: $\$$ _____ $\times 0.05 = \$$ _____ interest. End: $\$$ _____



The shortcut: $\$1,000 \times 1.05 \times 1.05 \times 1.05 = \$1,000 \times 1.05$ to the third power = \$_____

Part C: \$20 a week, by hand

\$20 a week $\times$ 52 weeks = \$_____ a year. You deposit it at the start of each year. At the end of the year the bank pays 5 percent on everything in the account.

Year	In the account at the start	Add this year	Balance before interest	The bank pays (5 percent)	End of year
1	\$0.00	\$1,040.00	\$1,040.00	$\$1,040.00 \times 0.05 = \52.00	\$1,092.00
2	\$1,092.00	\$1,040.00	\$_____	$\$_____ \times 0.05 = \$_____$	\$_____
3	\$_____	\$1,040.00	\$_____	$\$_____ \times 0.05 = \$_____$	\$_____
4	\$_____	\$1,040.00	\$_____	$\$_____ \times 0.05 = \$_____$	\$_____
5	\$_____	\$1,040.00	\$_____	$\$_____ \times 0.05 = \$_____$	\$_____

The jar after 5 years: $\$1,040 \times 5 = \$_____$

The account after 5 years: \$_____

The difference (the bank paid you this much for waiting): \$_____

Why does year 5 earn more interest than year 2 when the deposit is the same?



(Grade 6: years 1 to 3, and the jar at 3 years: \$3,120.)

Part D: The reveal (copy from the slide)

Years	The jar	The account at 5 percent	The difference
5	\$5,200	\$	\$
10	\$10,400	\$	\$
30	\$31,200	\$	\$

My guess was \$_____. The real number was \$_____.

Two savers. Nia puts \$1,000 in an account at 15 and never adds to it. At 5 percent she has about \$11,467 at 65. Cole puts \$2,000 in at 35. At 5 percent he has about \$8,644 at 65.

Who ended with more? ____ Who put in more? ____ What mattered more, the amount or the years? ____

Part E: My pay-yourself-first plan (three sentences)

1. I will save \$_____ a week (or \$_____ a month).
2. I will keep it in _____ (a jar, a youth savings account with an adult, another place) because _____.
3. My first goal for it is _____ by _____.

Grade 8 stretch

1. Redo the five-year table at 3 percent *[update]* on the back. End of year 5: \$_____. How much does the rate matter over five years? \$_____ less.
2. Check Nia's number with the shortcut: $\$1,000 \times 1.05$ to the 50th power. (Use the calculator's power key.) \$_____
3. Three places for the money [update]: a big bank savings account at 0.5 percent, an online bank at 4 percent, a credit union at 3 percent. Which pays the most? _____ Name two things besides the rate that should decide where the money goes:
_____, _____

Exit card (3-2-1)

3 reasons to save: _____, _____, _____

2 differences between a jar and a savings account: _____, _____

1 number: \$20 a week for 30 years at 5 percent: \$_____

Teacher key

Part A: reasons: a goal (a concert ticket, a laptop), an emergency fund (a phone screen, a lost bus pass; for an adult, three to six months of fixed expenses), the future (a car, college, a first apartment, retirement). Jar: no growth; not protected; easy to raid; anyone. Account: pays interest; FDIC or NCUA insured up to \$250,000 and the bank replaces a stolen card's losses in most cases; harder to raid (a trip to the bank or a transfer that takes a day); a youth account needs an adult co-owner at most banks. Pay yourself first: the savings amount comes out first, before any spending, ideally automatically.

Part B: simple: \$1,150. Compound: year 1 \$50, \$1,050; year 2 \$52.50, \$1,102.50; year 3 \$55.13, \$1,157.63. Shortcut: \$1,157.63.

Part C: \$1,040 a year.

Year	Start	Add	Before interest	Interest	End
1	\$0.00	\$1,040.00	\$1,040.00	\$52.00	\$1,092.00
2	\$1,092.00	\$1,040.00	\$2,132.00	\$106.60	\$2,238.60
3	\$2,238.60	\$1,040.00	\$3,278.60	\$163.93	\$3,442.53
4	\$3,442.53	\$1,040.00	\$4,482.53	\$224.13	\$4,706.66
5	\$4,706.66	\$1,040.00	\$5,746.66	\$287.33	\$6,033.99

Whole-dollar version (no calculators): interest \$52, \$107, \$164, \$224, \$287; end \$1,092, \$2,239, \$3,443, \$4,707, \$6,034. Accept answers within \$1 of either version.

Jar: \$5,200. Account: \$6,033.99. Difference: \$833.99. Year 5 earns more because the balance is bigger: the bank pays 5 percent on five deposits plus four years of interest, not on one deposit.

Part D: 5 years \$6,033.99 (difference \$833.99); 10 years \$13,735.05 (difference \$3,335.05); 30 years \$72,551.18 (difference \$41,351.18). Two savers: Nia ended with more; Cole put in more; the years mattered more. Nia's money had 50 years to double about three and a half times; Cole's had 30.

Part E: complete if all three sentences have a number, a place with a reason, and a goal with a date.

Grade 8 stretch: 1. At 3 percent: \$1,071.20; \$2,174.54; \$3,310.98; \$4,481.51; \$5,687.16. About \$347 less than at 5 percent. 2. \$11,467.40. 3. The online bank at 4 percent; also decide by fees, minimum balance, whether an adult can co-own it, and whether there is a branch or an ATM nearby.

Exit: any three reasons; any two differences; \$72,551.18 (accept "about \$72,500").