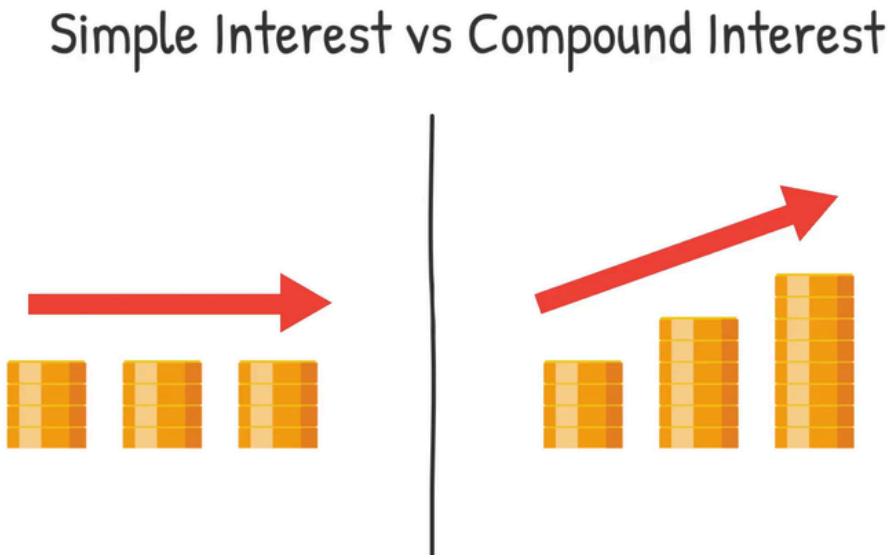
Section 1
Understanding Compound Interest

How is compound interest different from simple interest? (Think about how the amount grows, and what the interest is calculated on.)



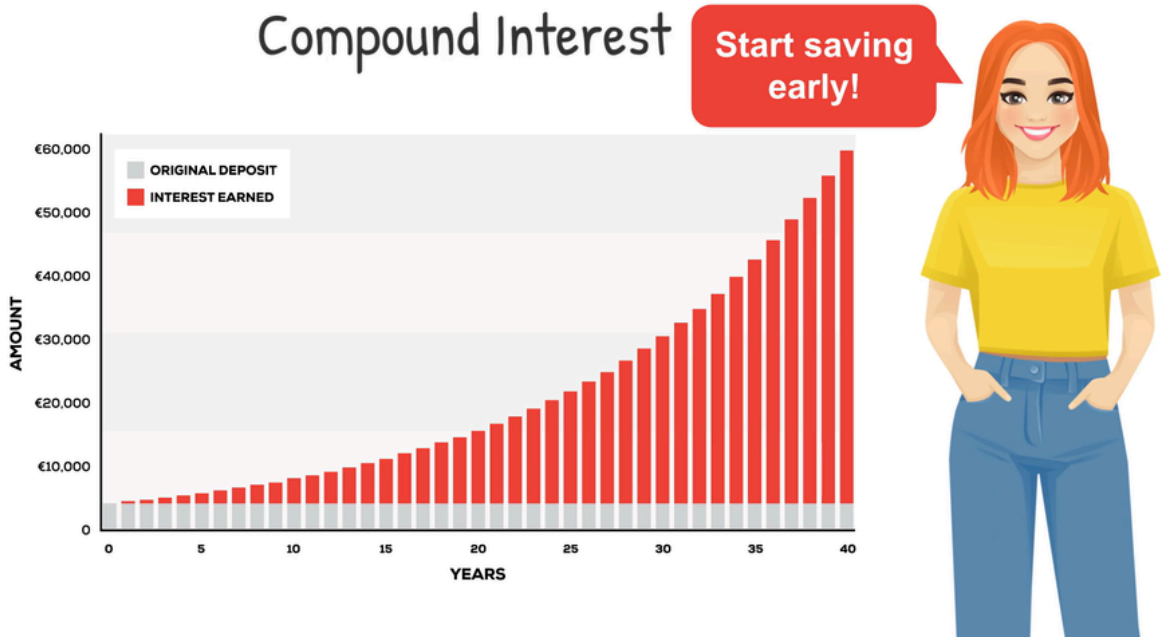
Simple interest is calculated only on the original amount, so it grows steadily by the same amount each time.

Compound interest is calculated on the original amount plus any interest already earned, so it grows faster over time.

SCAN ME

Section 1
Understanding Compound Interest

Why do people say 'start saving early' in reference to compound interest?



With compound interest you earn interest on your interest, and that effect builds over time. The earlier you start, the more time your money has to grow, so even small amounts can turn into much larger sums.

Section 2
Worked Examples

Worked Example: Laura's birthday money



Laura has €500 birthday money. After doing some research, she finds a deposit that offers an interest rate of 6% compounded annually. How much will Laura have after 3 years?

Solution:

	Principal	Rate	Interest	Amount at end of year
Year 1	€500	0.06	500(0.06) = 30	€550 + €30 = €530
Year 2	€530	0.06	530(0.06) = 31.80	€530 + €31.80 = €561.80
Year 3	€561.80	0.06	561.80(0.06) = 33.71	€561.80 + €33.71 = €595.51

Section 2
Worked Examples

Worked Example: Saving for a car



Laura has €730 from her part-time job. If she deposits this with a rate of 4.3% compounded annually, how much will she have in 3 years?

Solution:

$$F = P(1 + i)^T$$

$F = ?$

$P = 730$

$i = 4.3\% = 4.3 = 0.043$

$T = 3$

$1 + 0.043 = 1.043$

$1.043^3 = 1.134626507$

$730\ (1.134626507)$

$F = €828.28$

Section 3
Calculating Compound Interest

Q1. €1,600 was invested for 4 years at an interest rate of 4% compounded annually. Complete the table.

	Principal	Rate	Interest	Amount at end of year
Year 1	€1600	0.04	1600(0.04) = 64	€1600 + €64 = €1664
Year 2	€1664	0.04	1664(0.04) = 66.56	€1664 + €66.56 = €1710.56
Year 3	€1710.56	0.04	1710.56(0.04) = 68.42	€1710.56 + €68.42 = €1778.98
Year 4	€1778.98	0.04	1778.98(0.04) = 71.16	€1778.98 + €71.16 = €1850.14

Section 3
Calculating Compound Interest



Q2. €5,200 was invested for 2 years at compound interest. If the rate for the first year was 3.5% and the rate for the second year was 4%.

Find the total amount saved over the 2 years.

Year 1: 5200 x 0.035 = 182

5200 + 182 = €5382

Year 2: 5382 x 0.04 = 215.28

5382 + 215.28 = €5597.28

Section 4
Compound Interest Formula



Q2. Rehaan wants to travel after college. He invests €1,000 for 4 years at an interest rate of 3.8% compounded annually. How much will he have saved at the end of the 4 years?

*This formula can only be used when the interest rate does not change and there are no withdrawals or additional lodgements.

$$F = P(1 + i)^T$$

$$F = 1000(1 + 0.038)^4$$

$$F = €1160.89$$

Section 4
Compound Interest Formula

Q3. Naomi deposited €3,250 into a savings account earning 5% compound interest per year.

(i) Complete the table
(ii) Plot the graph
x-axis: Years
y-axis: Amount (€)

$$F = P(1 + i)^T$$

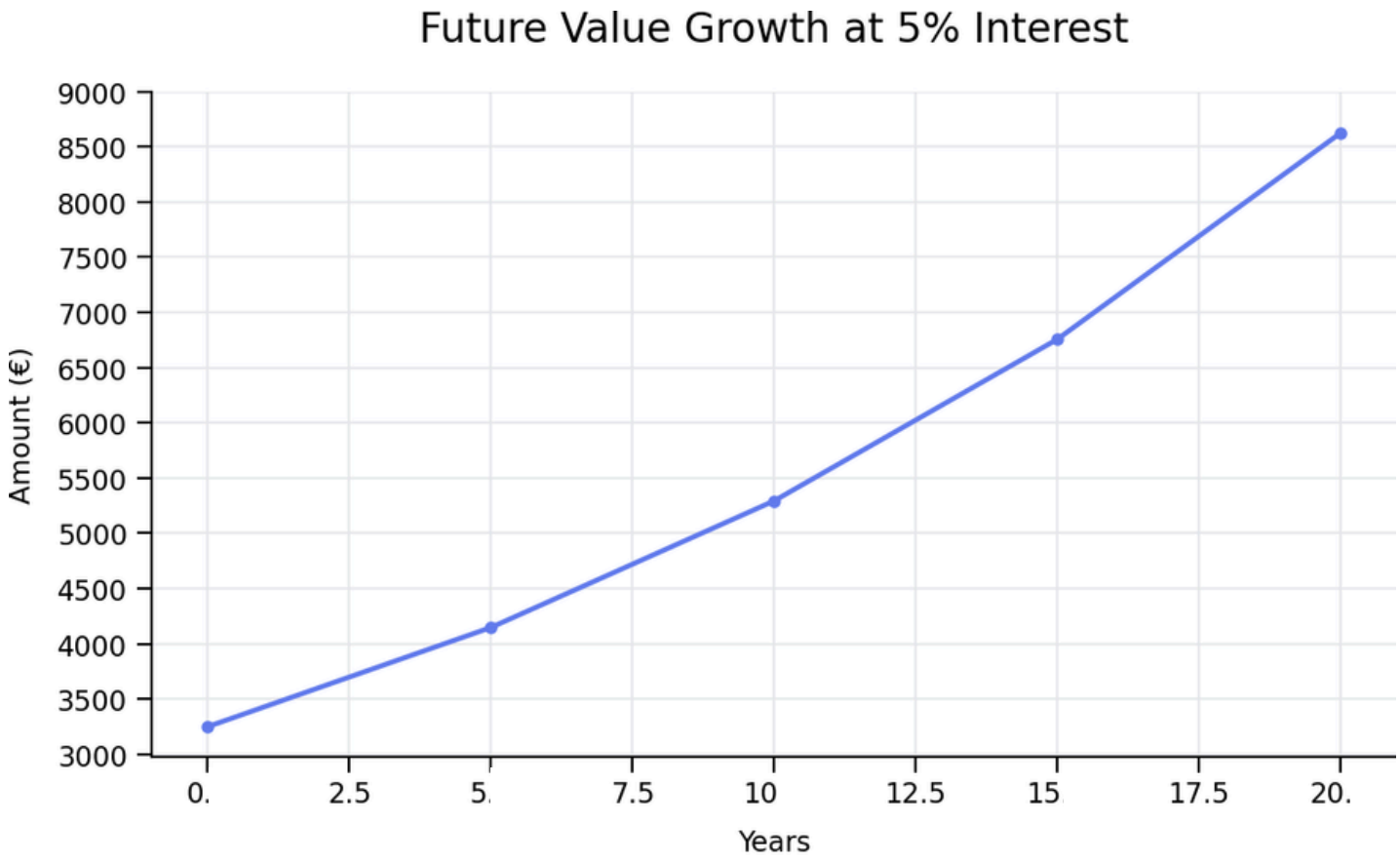
Time	Amount €
Year 5	$3250(1+0.05)^5 = 4147.92$
Year 10	$3250(1+0.05)^{10} = 5293.91$
Year 15	$3250(1+0.05)^{15} = 6756.52$
Year 20	$3250(1+0.05)^{20} = 8623.22$

Section 4
Compound Interest Formula

Q3. Naomi deposited €3,250 into a savings account earning 5% compound interest per year.

(i) Complete the table
(ii) Plot the graph
x-axis: Years
y-axis: Amount (€)

$$F = P(1 + i)^T$$



Section 5
Extension Activity

Q1. €1,200 was invested into a savings account earning a compound interest annually. After 3 years the value of the investment was €1,381.23. Calculate the rate of interest.

*Hint change the subject of the compound interest formula

$$F = P(1+i)^T$$

$$-1 + \sqrt[3]{\frac{1381.28}{1200}} = i$$

$$0.048 = i$$

4.8% = interest rate

Section 5
Extension Activity

Q2. What sum of money invested for 5 years at 6% per annum compound interest would total €13,382.26? Give your answer to the nearest whole number.

*Hint change the subject of the compound interest formula

$$F = P(1+i)^T$$

$$\frac{13382.26}{(1+0.06)^5} = P$$

$$€10,000 = P$$



Section 6
Discussion Questions

Where can you find the current interest rates on savings and investments? How can you compare them?

The CCPC provides a Money Tools section where you can compare available options on saving accounts.

As a customer is simple interest or compound interest better for saving? What about for the bank?

Compound interest is better for savers because you earn interest on both your original money and the interest already earned, so your savings grow faster over time. Simple interest only pays interest on the original amount, so growth is slower. For banks, the opposite applies: compound interest costs them more because they pay interest on accumulated interest, while simple interest is cheaper and more predictable.