



Money Maths - Compound Interest

Saving

When you save money, the bank or building society pays you extra money in the form of interest. This is a percentage calculated on the amount you have in the account. This interest is usually 'compound interest', which means the interest payment is calculated on the total amount in the account (i.e. the initial amount as well as any interest payments already received).

For example, if you put £100 into a savings account with 5% interest per annum, you would gain £5 in interest after the first year. However, in the second year, the interest would be calculated on the initial £100 as well as the extra £5. The second year's interest would be 5% of £105, which is £5.25.

You can use the following formula to calculate the total amount (including compound interest):

$$A = P (1 + i)^n$$

- A** refers to the total amount
- P** refers to the principle amount (the amount you originally invested)
- i** refers to the interest rate
- n** refers to the number of years.

So, for our original example, after 3 years the total amount in the account would be:

$$A = 100 (1 + 0.05)^3 = \text{£}115.76$$

To work this out:

$$1 + 0.05 = 1.05^3$$



$$1.05 \times 1.05 \times 1.05 = 1.1576$$



$$1.1576 \times 100 = \text{£}115.76$$

DID YOU KNOW?

Building societies and banks make money by lending money at higher interest rates than they offer to savers. When you borrow money in the form of a loan or mortgage, you have to pay compound interest. This tends to be more complicated to calculate than for savings, as payments are being deducted from the original amount.

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Money Maths - Compound Interest cont'd

Activity 1

Use your calculator to work out the total amount in each account at the end of the term (assuming none of the money is withdrawn and that interest rates are 'fixed'):

1. £1,000 invested for 2 years at a rate of 5%
2. £500 invested for 4 years at a rate of 6%
3. £750 invested for 5 years at a rate of 4.5%
4. £875 invested for 5 years at a rate of 3.5%
5. £933 invested for 7 years at a rate of 4.3%
6. £1,721 invested for 3 years at a rate of 5.2%
7. £3,684 invested for 4 years at a rate of 4.7%
8. £5,159 invested for 6 years at a rate of 2.9%

Activity 2

Look online at some of the interest rates offered by local building societies and banks. Work out the compound interest on these if you were to invest £1,000 for 3 years.