



Activity description

Students calculate interest for one year, then compound interest using a decimal multiplier.

Suitability

Level 1/2 (Foundation/Intermediate/Higher)

Time

1 or more lessons

Resources

Student sheets

Optional: slideshow

Equipment

Calculators

Optional: computers with Microsoft Excel and/or internet access

Key mathematical language

Percentage, compound interest, rate, rounding

Notes on the activity

In this activity students use a decimal multiplier to calculate interest. You may need to remind students (especially those working at Level 1) about converting decimals to percentages and rounding amounts of money.

There are three worksheets, which can provide progression or differentiation for a mixed-ability group. The first worksheet covers the calculation of interest for 1 year, the second involves compound interest, and the third is intended for students to use when investigating a range of accounts, possibly using the internet.

During the activity

Students can work individually or in pairs. If you have access to computers, students could use a spreadsheet to check their work, and the internet to find information about accounts.

Points for discussion

How the interest earned depends on both the amount in the account at the beginning of the year and the interest rate.

The main point about compound interest – how leaving money in the account gives increased amounts of interest each year.

Extensions

Use the more efficient multiplier method of multiplying by 1.02 to find the amount at the end of a year after an increase of 2 %.

Calculate compound interest per annum, starting with the same interest rate each year, developing to interest rates changing each year.

Use the internet to compare different bank and building society accounts.

Answers

Savings and interest

| Account | Amount in account | Interest rate | Calculated interest | Amount in account at end of year |
|---------|-------------------|---------------|---------------------|----------------------------------|
| 1 | £120 | 3.1 % | £3.72 | £123.72 |
| 2 | £350 | 5.4 % | £18.90 | £368.90 |
| 3 | £255 | 4.2 % | £10.71 | £265.71 |
| 4 | £430 | 3.5 % | £15.05 | £445.05 |
| 5 | £290 | 2.6 % | £7.54 | £297.54 |
| 6 | £305 | 2.4 % | £7.32 | £312.32 |
| 7 | £680 | 5.1 % | £34.68 | £714.68 |
| 8 | £550 | 4.9 % | £26.95 | £576.95 |
| 9 | £624 | 4.5 % | £28.08 | £652.08 |
| 10 | £593 | 5.1 % | £30.24 | £623.24 |
| 11 | £936 | 5.6 % | £52.42 | £988.42 |
| 12 | £1235 | 2.5 % | £30.88 | £1265.88 |
| 13 | £1235 | 2.6 % | £32.11 | £1267.11 |
| 14 | £2000 | 3.9 % | £78.00 | £2078.00 |
| 15 | £3500 | 5.3 % | £185.50 | £3685.50 |

Compound interest

| Year | Amount | Interest % | Interest £ | End of year |
|--------|---------|------------|------------|-------------|
| Year 1 | £400.00 | 5 % | £20.00 | £420.00 |
| Year 2 | £420.00 | 5 % | £21.00 | £441.00 |
| Year 3 | £441.00 | 5 % | £22.05 | £463.05 |
| Year 4 | £463.05 | 5 % | £23.15 | £486.20 |
| Year 5 | £486.20 | 5 % | £24.31 | £510.51 |

| Year | Amount | Interest % | Interest £ | End of year |
|--------|---------|------------|------------|-------------|
| Year 1 | £150.00 | 3 % | £4.50 | £154.50 |
| Year 2 | £154.50 | 3 % | £4.64 | £159.14 |
| Year 3 | £159.14 | 3 % | £4.77 | £163.91 |
| Year 4 | £163.91 | 3 % | £4.92 | £168.83 |
| Year 5 | £168.83 | 3 % | £5.06 | £173.89 |

| Year | Amount | Interest % | Interest £ | End of year |
|--------|----------|------------|------------|-------------|
| Year 1 | £950.00 | 3.4 % | £32.30 | £982.30 |
| Year 2 | £982.30 | 3.4 % | £33.40 | £1015.70 |
| Year 3 | £1015.70 | 3.4 % | £34.53 | £1050.23 |
| Year 4 | £1050.23 | 3.4 % | £35.71 | £1085.94 |
| Year 5 | £1085.94 | 3.4 % | £36.92 | £1122.86 |