Mathematical Applications Finance

Investments

Choose at least two ways of investing a sum of money
(eg fixed rate bonds, shares, property, gold, art, fine wines).
Investigate how the investment would have performed
over recent years.

Loans

There are many ways of borrowing money (eg student loans, bank loans, credit cards,
mortgages, hire purchase). Investigate the cost and APR incurred in two or more methods.

Inflation

By considering your own pattern of expenditure, calculate
the rates of inflation you have experienced over recent years.
Consider how the rates you have calculated depend on the
use of Laspeyres, Paasche or Fischer indices.
Compare your results with published RPI data.

Save or borrow?

When you want to buy an expensive item (eg a car, computer equipment or a plasma screen
television) you may decide to save a regular amount each month until you have enough, or
you may decide to use a credit card or take out a loan so that you can have the item
immediately. Compare the overall costs of two or more methods and discuss their advantages
and disadvantages.

Note

To achieve a high mark for your chosen task, you will need to
- show initiative, structure your work logically and report it fluently
- use appropriate, efficient and concise methods (most being beyond Higher level
  GCSE) and include ICT where appropriate;
- consider how your initial data, and assumptions affect your findings.

When writing up your findings, include any calculations, tables, graphs or diagrams that you
have used in reaching your conclusions.

Teacher Notes

Unit   Advanced Level, Mathematical Applications

Notes on Activity
This task is based on the content of Mathematical Principles for Personal Finance and could be one of the two tasks required for a candidate's Mathematical Applications Coursework Portfolio.

The two tasks must be marked separately and the two marks totalled to produce one final mark for the unit. For each of the two tasks, the candidate will be given a mark, from 0 to 7, for each of three themes:
- Structuring and presenting work
- Using appropriate mathematics (and technology) and working accurately
- Interpreting mathematics

The marking grid below gives a description under each of these themes for work at various marks.

	Structuring and presenting work	*Using appropriate mathematics (and technology) and working accurately*	*Interpreting mathematics*
0	The portfolio task has substantial omissions and is poorly presented.	There is little evidence of using mathematics accurately at the appropriate level.	There is little evidence of relating mathematics to the situation(s) investigated or there are substantial errors in interpretation.
1			
2	The portfolio task has been completed with only a little advice and is well presented so that it is easy to follow.	A significant proportion of the work is beyond GCSE and is substantially correct.	The candidate has interpreted the main mathematical findings in terms of the situation(s) investigated.
3			
4	The candidate has worked independently *and* produced a portfolio task that is well-structured and reported with clarity.	A significant proportion of the work is beyond Higher Level GCSE and is substantially correct, using relevant mathematical techniques *and* ICT where appropriate	The candidate has used mathematics to correctly summarise and draw conclusions about the situation(s) investigated.
5			
6	The candidate has shown initiative in developing their portfolio task *and* has structured it logically and has reported their work fluently.	The candidate has used appropriate, efficient and concise methods of working.	The candidate has considered, how their initial data, and assumptions where appropriate, affect their findings.
7			