

## CFM FINANCIAL MANAGEMENT: FM.1 AND FM.4

# Comparing Interest Earned, Interest Paid, and the Effect of Time

*Detailed practice, calculation, decision-making, and assessment*

|                                                                                                                                                                                             |                           |                                      |                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------|---------------------------|
| <b>GRADES</b><br>9-12                                                                                                                                                                       | <b>TIME</b><br>2 x 42 min | <b>GROUPING</b><br>I / pairs / whole | <b>PRODUCT</b><br>Explain |
| <b>YOUR CHALLENGE</b> Calculate simple and compound interest, compare earning and borrowing situations, and explain how rate, time, compounding, fees, and payment behavior affect results. |                           |                                      |                           |

## New York CFM Connections: Financial Goals, Decision Making, Interest, and Time

Interest can help money grow when it is earned and increase cost when it is paid. The result depends on principal, rate, time, compounding, fees, deposits, withdrawals, and payments. Advertised rates should be compared using current written terms, not slogans.

| Term                                                                                                                                                                                                               | Student-friendly meaning                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Principal                                                                                                                                                                                                          | The starting amount saved, invested, or borrowed.                                    |
| Simple interest                                                                                                                                                                                                    | Interest calculated only on the original principal in this activity.                 |
| Compound interest                                                                                                                                                                                                  | Interest calculated on principal plus previously credited interest.                  |
| APR                                                                                                                                                                                                                | A standardized annual rate used in credit comparisons.                               |
| APY                                                                                                                                                                                                                | A standardized annual yield reflecting compounding for deposit comparisons.          |
| Rule of 72                                                                                                                                                                                                         | A rough estimate of doubling time found by dividing 72 by an annual percentage rate. |
| <b>CLASSROOM USE</b> All people, employers, figures, brackets, and documents in this packet are fictional. Never place a real Social Security number, employer ID, bank number, or tax document in classroom work. |                                                                                      |

## Part 1 - Calculate Simple Interest

A fictional account has \$1,000 principal, 5% annual simple interest, and a 3-year term.

| Year  | Principal | Interest calculation | Interest earned | Ending amount |
|-------|-----------|----------------------|-----------------|---------------|
| 1     |           |                      |                 |               |
| 2     |           |                      |                 |               |
| 3     |           |                      |                 |               |
| Total |           |                      |                 |               |

Use  $I = P \times r \times t$  and express 5% as 0.05.

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## Part 2 - Calculate Annual Compounding

The same \$1,000 earns 5% compounded annually for 3 years.

| Year  | Beginning balance | Interest at 5% | Ending balance | Difference from simple |
|-------|-------------------|----------------|----------------|------------------------|
| 1     |                   |                |                |                        |
| 2     |                   |                |                |                        |
| 3     |                   |                |                |                        |
| Total |                   |                |                |                        |

Round money to cents at each year for this classroom calculation.

### Part 3 - Compare Interest Paid and Earned

Scenario A: earn 5% on \$1,000 for one year. Scenario B: borrow \$1,000 at a fictional 12% simple annual-rate illustration for one year with no payments or fees.

| Scenario   | Interest equation | Interest | Ending value/balance | Meaning |
|------------|-------------------|----------|----------------------|---------|
| Earn       |                   |          |                      |         |
| Borrow     |                   |          |                      |         |
| Difference |                   |          |                      |         |
| Limitation |                   |          |                      |         |

The borrowing example is not an amortized loan disclosure.

## Part 4 - Analyze Rate and Time

Use the Rule of 72 for 3%, 6%, 9%, and 12%; then identify its limits.

| Rate | 72/rate | Approximate years | Meaning/limitation |
|------|---------|-------------------|--------------------|
| 3%   |         |                   |                    |
| 6%   |         |                   |                    |
| 9%   |         |                   |                    |
| 12%  |         |                   |                    |

Do not present the estimate as a guarantee.

## Part 5 - Write an Interest Decision Guide

Write 175-225 words applying FM.4 to saving and borrowing.

| Decision check    | Rule/evidence |
|-------------------|---------------|
| Principal         |               |
| APR/APY           |               |
| Compounding       |               |
| Time              |               |
| Fees              |               |
| Payments/deposits |               |
| Total result      |               |
| Verification      |               |

Include one example of interest helping and one of interest increasing cost.

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