

Lesson One: Simple Interest vs Compound Interest

GOALS:

- Explain the advantages and disadvantages of simple interest and compound interest.
- Graph and describe the effects of changing one of the variables in a situation involving compound interest.

When you deposit money into a savings account at a financial institution, you are lending them your money. The institution will pay you interest for the use of your money. There are two ways that interest may be calculated: simple interest and compound interest. We'll look at how simple interest is calculated first.

Simple Interest

Simple interest is usually applicable to short term investments of one year or less. In simple interest, the principal at the beginning of the second year is the same as the principal at the beginning of the first year. This results in the same amount of interest being earned every year. The formula used for calculating simple interest is:

$$\text{Interest} = \text{Principal} \times \text{Rate} \times \text{Time}$$

which is shortened to:

$$I = PRT$$

Principal is the amount of money borrowed or invested.

Rate is the annual interest rate (as a decimal number).

Time is based on a period of years. If months or days are given, they must be converted to a fraction (or a piece) of a year.

Example 1

An amount of \$1000 is deposited in a savings account earning 6% simple interest. Let's calculate the amount of interest earned for 2 years using the simple interest formula $I = PRT$

Simple Interest is a **one time** calculation of interest. We can calculate the amount of interest earned in 2 years by using the simple interest formula as follows:

$$I = 1000 \times 0.06 \times 2$$

$$I = \$120$$

The formula calculates the total amount of interest earned in 2 years which can then be added to the original investment to determine the total value of the investment at the end of the investment period:

$$\text{Total Value after 2 years} = \$1000 + \$120$$

$$\text{Total Value after 2 years} = \$1120$$