Today, we are going to discuss a very interesting topic Simple and Compound interest.

It deals with the money matters. By the end of it, we shall be familiar with the basic formulas used for the calculation of simple and compound interest and their practical applications.

Various terms to be used along with their general representation are:

**Interest**
It is money paid by borrower for using the lender's money for a specified period of time. Denoted by I.

**Principal**
The original sum borrowed. Denoted by P.

**Time**
Time is a period for which the money is borrowed. Denoted by n

**Rate of Interest**
Rate at which interest is calculated on the original sum. Denoted by r.

**Amount**
Sum of Principal and Interest and is denoted by A.

**Simple Interest**
The interest calculated every year on original principal, i.e. the sum at the beginning of first year. It is denoted by SI.

\[ SI = Pnr \]
A=P+SI

**Compound Interest**

The interest is added to the principal at the end of each period to arrive at the new principal for the next period.

OR

The amount at the end of year will become principal for the next year and so on.

Let P be principal borrowed at the beginning of period 1.

Amount at end of period n=1 is

A= P (1+r/100)

Then,

New Principal at the beginning of period 2 will be A i.e. P (1+r/100) = P*R where R=(1+r/100).

Lets’ checkout the applicability of the above concept with an example

Consider P at the beginning of year of Rs 100 and r=10% p.a. Now, for the next three years the calculation of simple and compound interest is as follows:
As can be seen from the table,

<table>
<thead>
<tr>
<th>Year</th>
<th>Under Simple Interest</th>
<th>Under Compound Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Principal at beginning of year</td>
<td>Amount at the end of the year</td>
</tr>
<tr>
<td></td>
<td>Interest for the year</td>
<td>Interest till the end of the year</td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>10</td>
</tr>
</tbody>
</table>

As can be seen from table,

<table>
<thead>
<tr>
<th>UNDER SIMPLE INTEREST</th>
<th>UNDER COMPOUND INTEREST</th>
</tr>
</thead>
<tbody>
<tr>
<td>P is same for every year</td>
<td>A at the end of every year = P for next year</td>
</tr>
<tr>
<td>I is same for every year</td>
<td>I is different for each year.</td>
</tr>
</tbody>
</table>

Hope you are clear with the ‘interesting aspect of this topic!'