RATE OF RETURN
COMPOUND INTEREST—A MILLIONAIRE’S BEST FRIEND

Work with a partner or small group to calculate the future value of a one-time investment using three different interest rates. Then, design a graph that compares the impact of the interest rate on the investment. Use each of the methods below to help you understand how compound interest works. Use 40 years as the amount of time for your investment, unless your teacher instructs you differently.

<table>
<thead>
<tr>
<th>Investment 1</th>
<th>Investment 2</th>
<th>Investment 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rate</td>
<td>Interest Rate</td>
<td>Interest Rate</td>
</tr>
<tr>
<td>Time</td>
<td>Time</td>
<td>Time</td>
</tr>
</tbody>
</table>

1. Use the Compound Interest Formula and compute manually:

\[ FV = PV(1+r/m)^{mt} \]

- \( FV \) is the Future Value.
- \( PV \) is the Present Value (the principal you start with, your first deposit).
- \( r \) is the annual rate of interest as a decimal (5% is expressed as the decimal 0.05).
- \( m \) is the number of times per year the interest is compounded (monthly, annually etc.).
- \( t \) is the number of years you leave it invested (use 40).

*For this exercise, interest will be compounded once a year.*

2. Use a spreadsheet program, like Microsoft Excel, to compute using the Fv(Future Value) formula found within the program. Students can also use the spreadsheet program to create graphs based on their data.

- \( \text{Rate} \) = interest rate (use 12%)
- \( \text{Nper} \) = total number of payment periods, which will equal the total years invested (ex. 40)
- \( \text{Pmt} \) = the payment made each period (use 0 because it is a one-time investment.)
- \( \text{PV} \) = present value, or the initial investment
- \( \text{Type} \) = when payments are due beginning or end of period (ex. use 1)

3. Use the online investing calculator at daveramsey.com