

## **Section 3—Financial Security**

**Title of Lesson:** Saving Accounts

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**Time Allotment:** 4 days

**Grade:** Business Math Class Grades 10-11

**Key Economic Concepts:** What is interest and how does it affect you?

### **Brief Description**

Learn the difference between simple and compound interest.

Use a compound interest chart and the rule of 72.

### **Objectives**

To calculate simple interest on savings deposits

To calculate compound interest on savings deposits

To interest using a compound interest table

To introduce the rule of 72

To calculate compound interest using the formula  $B=p(1 + r/n)^n$

### **Introduction**

Banks provide protection for your money when you open a savings account. They also pay you interest. Why do they pay you interest?

### **Materials needed**

Business Math – 16<sup>th</sup> edition from Thomson \* Southwestern Lesson 3.6 pg 111

Workbook

Pen, pencil, calculator

### **AV Equipment:**

### **Lesson Outline:**

#### **Day 1**

Math Skill Builder.

1. Change a percent to a decimal
2. Multiply money amounts by decimals and round.
3. Multiply money amounts by fractions.
4. Multiply percents by fractions.

Simple Interest

1. Definition – You receive the sample amount of interest each year.
2. Interest – money paid to a person for the privilege of using their money.
3. Principal – the amount of money invested
4. Rate – annual percentage rate
5. Time – time in years



Nov

Dec 31  $812.06 \times .02 \times .25 = \$4.06$

Jan 1  $812.06 + 4.06 = 816.12$

I earned \$16.12 in interest

New balance is \$816.12

Assignment:

Page 112 – Check your understanding A and B

Page 113 – Check your understanding C and D

## Day 2

Review terminology from day 1.

Compound interest tables – Use a table to calculate compound interest.

Terms:

Multiplier – number from the chart to help calculate compound interest

To calculate:

1. Locate the column and row where the interest rate and the number of interest periods meet.
2. The number you find is the multiplier
3. Multiply the deposit amount by the multiplier to get the compound amount.

Example: Find the multiplier

2% for 90 days is 1.005012

4 % annually for 5 years 1.216653

Example – determine the interest

\$400 annual rate 2.5% 12 years

Find the multiplier 1.344888

Calculate your compound amount  $400 \times 1.344888 = \$537.96$

Calculate interest  $537.96 - 400 = 137.96$ .

Rule of 72 – a calculation that gives the approximate length of time it takes a deposit to double at various interest rates.

Example – Rate is 4%  $72/4 = 18$  years to double

Example:

\$1200 annual interest 4% compounded quarterly.

Find the compound interest the deposit will earn in 3 years.

Rate 4% annual rate

Compounded How : Quarterly 4 times a year  $\frac{1}{4}$

Rate x How  $.04 \times \frac{1}{4} = .01$

Time is 3 years - interest period is  $3 \times 4 = 12$

Multiplier from chart 1.126825

Calculate compound amount  $1200 \times 1.126825 = 1352.19$

Calculate interest  $1352.19 - 1200 = 152.29$

Compound Interest Formula  $B = p(1 + r/n)^n$

B Balance in the account after the interest is added

p is the principal

r is the annual rate

n is the number of time a year that interest is compounded

$$B = 1200(1 + .04/4)^4$$

$$B = 1200 (1.01)^4$$

$$B = 1200 \times 1.04060401$$

$$B = 1248.72$$

Assignment: Page 115 -116 problems 1-25

### Day 3

Review terminology

Go over the assignment

Complete Workbooks Complete exercises 1-18.

### Day 6

Quiz on calculating interest The quiz would contain:

Matching on terminology

Simple Interest problem

Compound interest problem

Compound interest using the table

Rule of 72

Compound interest using the interest formula.