

# Financial Algebra Compound Interest Lab

**Text:** *Financial Algebra* by Robert Gerver and Richard Sgroi

**Chapter:** 3 – Banking Services

**Unit number:** 3-5    **Title of unit:** Compound Interest Formula

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## Attach the Following Documents:

1. Lab Instructions
2. Student Handout(s)
3. Rubric and/or Assessment Tool

**Short Description (Be sure to include where in your unit this lab takes place):**

This lab is to take place after the completion of Unit 3-5 in the Financial Algebra book. The purpose of this lab is to develop a deeper understanding of compound interest to facilitate a results-oriented process that is focused on improving the academic achievement and functional performance of the student in order to facilitate the student's movement from school to post-school activities, including postsecondary education/training, employment, and if appropriate, independent living skills.

## How Do I Know If I Am Getting the Best Interest Rate on My Money

### LAB PLAN

**TEACHER:** (*Teacher Prep/Lab Plan*)

➤ **Lab Objective**

For the student to be able to distinguish the difference between the types of interest and how it is compounded, from lending institutions and be able to determine which institution provides the best annual percentage rate (APY).

➤ **Statement of prerequisite skills needed** (*Vocabulary, Measurement Techniques, Formulas, etc.*)

Understand the simple interest formula  $I=PRT$

Understand the compound interest formula  $B = P \left(1 + \frac{r}{n}\right)^{nt}$

Understand the APY formula  $APY = \left(1 + \frac{r}{n}\right)^n - 1$

➤ **Vocabulary**

Balance	Savings Account
CD (Certificate of Deposit)	Interest
Principal	Rate
Time	Spreadsheet

➤ **State Standards addressed:** (*Highlight "Green" Standards, you may use your District's Power Standards if applicable*)

▲ **Math:** 1.1.4; 1.2; 2.2.2; 3.3.2

- ⤴ **Reading:** 1.2.2; 2.1.4; 2.1.5; 2.3.4
- ⤴ **Algebra 1:** A1.1.A; A1.1.E; A1.3.B; A1.7.C
- ⤴ **Algebra 2:** A2.1.A; A2.1.C; A2.8.A; A2.8.B; A2.8.C; A2.8.D; A2.8.E; A2.8.F
- ⤴ **Common Core Standards:** Algebra – Seeing Structure in Expressions A-SSE; Functions – Interpreting Functions F-IF
- ⤴ **Leadership: Teamwork and Presentation Skills**
- ⤴ **SCAN Skills/Workplace Skills:**
  - ⤴ Basic Skills: A, C, and D
  - ⤴ Arithmetic Skills: A, B, C, and D
  - ⤴ Mathematics Skills: B and D
  - ⤴ Thinking Skills: Creative Thinking, Decision Making, and Problem Solving

- **Teacher Preparation:** (*What materials and set-up are required for this lesson?*)
  - ⤴ **Materials:**  
Computers, Spreadsheet Program, Printer, Calculators, Paper, Pencils, Rate Quotes from several (at least 4) banks or credit unions that service your area, Internet
  - ⤴ **Set-Up Required:**  
No new room or equipment setup needed.

- **Lab Organizational Strategies:**
  - ⤴ **Grouping/Leadership/Presentation Opportunities:**  
Students will pair up with a student of their choice. However, you as the teacher reserve to right to change these pairings on the needs of the students and the class.
  - ⤴ **Cooperative Learning:**  
Students will work together to solve the problems and then collectively select the best solution for them.
  - ⤴ **Expectations:**  
Students will learn to analyze data and make informed decisions based on that data.
  - ⤴ **Time-line:**  
2 to 3 class periods depending on the length of the class period and the skill levels of the students.

- **Post Lab Follow-Up/Conclusions** (*to be covered after student completes lab*)
  - ⤴ Discuss real world application of learning from lab:
    - ⤴ Why would it be important to know which bank or institution was giving you the best return on your invested money?
    - ⤴ Does initial look at the quoted rates actually tell you which institution is best? Why or why not?

⤴ **Career Applications:**

Banker	Venture Capitalist	Economist
Builder	Investor	Insurance Agents
Real Estate Agents	Lawyer	Doctor
Teacher	Laborer	

- ⤴ **Optional or Extension Activities:**  
Creation of spreadsheets that will calculate: simple interest, compound interest, and APY. These can then be used by the students or others to do their calculations.

Research additional institutions on the internet and get their rates of returns. Include the additional institutions in the solving of the problem.

Give each group a different amount of money to deposit.

# **LAB TITLE: How Do I Know If I Am Getting the Best Interest Rate on My Money**

## **STUDENT INSTRUCTIONS:**

### **➤ Statement of problem addressed by lab**

You have just received an insurance claim payment of \$5,000. You want to put this money to work for you by earning interest at a savings institution. You are not sure which one to put the money into. So you enlist the help of your classmate.

1. You and your classmate are going to choose 5 financial institutions.
2. You will use the data from those institutions to create a table and put the information about the institutions into the table.
3. Choose the best institute for you money by calculating the APY for the institutions.
4. Then estimate the balance if your money is invested for a period of 6 years.

### **➤ Grouping instructions and roles**

1. Choose one classmate to be your partner
2. Decide which institutions from the list you will use

### **➤ Procedures – steps to follow/instructions**

1. Using the institutes that you have chosen, select the time periods and interest rates that you will use.
2. Calculate the APY for each institution, time period, and interest rate based on monthly compounding.
3. Put your information and calculation into a table. HINT: Include Institution, Interest Rate, and APY in the table.

### **➤ Outcome instructions**

1. You will create a chart in the form of a table with your information.
2. You will then indicate which institution you will put your money with. This is by a written recommendation.

### **➤ Assessment instructions**

1. Turn in your completed table that includes your calculations.
2. Turn in your recommendation of institution for your investing.
3. Grading will be on the work turned in.

## Student Handouts:

### Institutions and their rates:

Institution	Product	Interest Rate	Min to earn Interest Rate
Discover Bank	3 Month CD	0.45 %	\$2,500
Regal Financial Bank	3 Month CD	0.35 %	\$1,000
Bank of Internet USA	3 Month CD	0.15 %	\$1,000
Citibank	3 Month CD	0.15 %	\$10,000
HSBC Advance	3 Month CD	0.10 %	\$1,000
Zions Bank	3 Month CD	0.10 %	\$1,000
Seattle Bank	3 Month CD	0.10 %	\$1,000
<a href="#">CIT Bank</a>	6 Month CD	0.45 %	\$1,000
Discover Bank	6 Month CD	0.80 %	\$2,500
Regal Financial Bank	9 Month CD	0.65 %	\$1,000
Pentagon Federal CU	6 Month CD	0.40 %	\$1,000
Seattle Bank	9 Month CD	0.30 %	\$1,000
HSBC Advance	4 Month CD	0.10 %	\$1,000
Aurora Bank FSB	6 Month CD	0.10 %	\$1,000
<a href="#">CIT Bank</a>	12 Month CD	1.06 %	\$1,000
Discover Bank	18 Month CD	1.00 %	\$2,500
Union National Bank	12 Month CD	0.93 %	\$5,000
Pentagon Federal CU	12 Month CD	0.90 %	\$1,000
Regal Financial Bank	12 Month CD	0.85 %	\$1,000
Seattle Bank	18 Month CD	0.45 %	\$1,000
HSBC Advance	12 Month CD	0.20 %	\$1,000
Aurora Bank FSB	12 Month CD	0.15 %	\$1,000
<a href="#">CIT Bank</a>	36 Month CD	1.42 %	\$1,000
Pentagon Federal CU	84 Month CD	2.40 %	\$1,000
Discover Bank	60 Month CD	1.80 %	\$2,500
Seattle Bank	60 Month CD	1.45 %	\$1,000
Union National Bank	36 Month CD	1.29 %	\$5,000

## Student Selected Institutions Data Chart

Institution	Time Period	Interest Rate