

*Money Math: Lessons for Life***Activity 1-4****Confounding Compounding**

Uncle Mort has taught you a lot about saving. Now he's encouraging you to open a savings account. **He says that it's best to have interest compounded as often as possible.** You still aren't too certain what compounded more than once a year means, or how it is done.

Uncle Mort sends you an e-mail message with the following example. Suppose that a bank offers a 5% interest rate, compounded semi-annually.

At the end of six months, the bank will multiply your balance by $\frac{1}{2}$ the interest rate and add that amount to your account. So, if you have \$180 in the bank after six months, the bank will add \$4.50 to your account. Your new balance will be \$184.50. (10% of 180 is 18 so 5% is 9. Half of 9 is 4.5)

At the end of the next six months, if you still have \$184.50 in your account, the bank will add \$4.61 to your account. Your new balance will be \$189.11. (184.50 times 0.05 divided by 2 is 4.61.)

1. What decimal amount would you use to calculate **quarterly** interest?
2. Suppose that the bank pays a 5% interest rate, compounded quarterly.

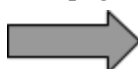
You deposit \$360 at the beginning of each grade.

Complete the following table to calculate the total savings you'll have at the end of each year. The first two rows are completed for you.

Grade Level	Deposit Plus Previous Balance	First Quarter Interest	Subtotal	Second Quarter Interest	Subtotal	Third Quarter Interest	Subtotal	Fourth Quarter Interest	Accumulated Savings
7 th	\$ 360.00	\$4.50	\$364.50	\$4.56	\$369.06	\$4.61	\$373.67	\$4.67	\$ 378.34
8 th	738.34	9.23	747.57	9.34	756.91	9.46	766.37	9.58	775.95
9 th									
10 th									
11 th									
12 th									

3. How many dollars were **deposited** during the six years? _____
4. How much **interest** was earned? _____

Go to page 2.



5. What is **simple interest**, and how is different than **compound interest**?
6. If you put \$200 in a savings account that paid 5.5% **simple interest** each year, how much interest would you earn in five years? Show your work.

Year	Principle	Interest	Amount at end of year
1	\$200	$200 \cdot 0.055 = 11$	\$211
2	\$200 (same, not \$200 more)	$200 \cdot 0.055 = 11$	$\$211 + \$11 = \$222$
3			
4			
5			

7. If you put \$150 in a savings account that paid 6% **compounded yearly**, how much interest would you earn in five years?

Year	Principle	Interest	Amount at end of year
1	\$150	$150 \cdot 0.06 = 9$	\$159
2	\$159	$159 \cdot 0.06 = 9.54$	\$168.54
3			
4			
5			

8. Find an online compound interest calculator. What was the site?
9. Does it agree with your answer in question 7?