LESSON MAKER PRO

Interest Choice Lab

Plan, calculate, and check savings and loan choices.

GRADE 8 · TEKS 8.12

8.12 "Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor..."

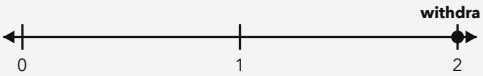
NAME _____ DATE _____

COMPARE INTEREST GROWTH

For simple interest, use $I = Prt$, then add the interest to the principal for the final amount. For compound interest compounded yearly, use $A = P(1 + r)^t$. Change a percent to a decimal, and compare final amounts in the same situation.

WORKED EXAMPLE

Mia invests $100 for 2 years at 10% interest. Compare the final amount with simple interest and yearly compound interest.



1. Simple interest: $I = 100(0.10)(2) = 20$.
2. Simple final amount: $100 + 20 = 120$.
3. Compound amount: $A = 100(1.10)^2 = 121$.
4. Compare: $121 - 120 = 1$ more with compounding.

Answer: Simple interest: $120. Compound interest: $121. Compound interest earns $1 more.

PRACTICE 4 problems

1 Ava puts $120 in a simple-interest account at 5% for 3 years. Calculate the interest, then check the final balance by adding it to $120.

ANSWER _____

2 Leo saves $150 in an account that compounds yearly at 6% for 1 year. What is the final balance?

ANSWER _____

3 For 3 years, a $300 savings account earns 8% interest. Bank A uses simple interest. Bank B compounds yearly. Which bank has the higher balance, and by how much? Round to the nearest cent.

ANSWER _____

4 An easy-access loan of $80 charges 30% simple interest for 1 year, with no fees. What total will Jordan repay?

ANSWER _____

APPLY IT Show your work

1 Kai puts $400 of birthday money into an account that compounds yearly at 4%. He leaves it there for 3 years to help buy a phone. What will the balance be, and how much interest will Kai earn? Round to the nearest cent.

WORK SPACE

ANSWER _____

2 A student compares two simple-interest laptop loans with no fees. Loan A is $600 at 9% for 15 months. Loan B is $600 at 12% for 12 months. Which loan has the lower total repayment, and by how much?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Nora starts a college savings account with $500. It earns 6% compound interest yearly. At the end of each of the first 2 years, she adds $150. At the end of the third year, how much must she add to have at least $1,100? Round the account balance to the nearest cent each year. Explain why adding $150 the third year is not enough.

WORK SPACE AND ANSWER

ANSWER KEY

Interest Choice Lab

GRADE 8 · TEKS 8.12

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Ava puts $120 in a simple-interest account at 5% for 3 years. Calculate the interest, then check the final balance by adding it to $120.	**Interest: $18. Final balance: $138.**
2	Leo saves $150 in an account that compounds yearly at 6% for 1 year. What is the final balance?	**$159**
3	For 3 years, a $300 savings account earns 8% interest. Bank A uses simple interest. Bank B compounds yearly. Which bank has the higher balance, and by how much? Round to the nearest cent.	**Bank B has the higher balance. Bank A: $372.00; Bank B: $377.91; difference: $5.91.**
4	An easy-access loan of $80 charges 30% simple interest for 1 year, with no fees. What total will Jordan repay?	**$104**

PART 2 · APPLY IT

1. **Balance: $449.95. Interest earned: $49.95.** Use $A = 400(1.04)^3 = 449.9456$, which rounds to $449.95. Subtract $400 to find the interest.
2. **Loan A has the lower total repayment by $4.50. Loan A total: $667.50; Loan B total: $672.00.** Convert 15 months to 1.25 years. Loan A interest is $67.50, and Loan B interest is $72.00, so compare the totals.

CHALLENGE

She must add $176.95. After third-year interest, the balance is $923.05. Adding $150 gives $1,073.05, which is $26.95 short of $1,100.

Accept equivalent correct calculations. For compound-interest amounts, accept answers rounded to the nearest cent as directed, including $377.91, $449.95, and $176.95.