

TEKS Cluster: Personal Financial Literacy

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.

Calculations

Readiness Standards

8.12(D) calculate and compare simple interest and compound interest earnings

Supporting Standards

8.12(A) solve real-world problems comparing how interest rate and loan length affect the cost of credit

8.12(C) explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time

8.12(G) estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college

Non-tested Standards

8.12(B) calculate the total cost of repaying a loan, including credit cards and easy access loans, under various rates of interest and over different periods using an online calculator

Analysis

Non-tested Standards

8.12(E) identify and explain the advantages and disadvantages of different payment methods

8.12(F) analyze situations to determine if they represent financially responsible decisions and identify the benefits of financial responsibility and the costs of financial irresponsibility

TEKS Scaffold

TEKS	Student Expectation
8.12(C)	explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time (S)

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. The student is expected to:

(D) calculate and compare simple interest and compound interest earnings

7.13(E)	calculate and compare simple interest and compound interest earnings (S)
7.13(B)	identify the components of a personal budget, including income; planned savings for college, retirement, and emergencies; taxes; and fixed and variable expenses, and calculate what percentage each category comprises of the total budget (S)

Stimulus

Word Problem*	Verbal Description*	Chart/Table	Graph
Equation/Expression	Ordered Pairs	Diagram/Image	Number Line
Base Ten Blocks	Measurement Tool	Formula	Geometric Figures

Item Types

Multiselect (2 pts)	Match Table Grid (2 pts)	Drag and Drop* (1-2 pts)	Fraction Model (1-2 pts)
Hot Spot (1-2 pts)	Inline Choice (1-2 pts)	Number Line (1-2 pts)	Graphing (1-2 pts)
Text Entry (1-2 pts)	Equation Editor (1-2 pts)	Multiple Choice* (1 pt)	

Content Builder (see Appendix for Tree Diagram)

- Calculate simple interest earnings
- Calculate compound interest earnings
- Compare simple and compound interest earnings

Instructional Implications

Students apply their understanding of operations of rational numbers and solve problems involving percents as they calculate simple and compound interest.

	Simple Interest	Compound Interest
Definition	interest that is calculated once per period on the principal and not on any interest	interest that is paid on both the principal and also on any interest from past years
Formula	$I = Prt$, where interest = principal multiplied by interest rate multiplied by length of time in years	$A = P(1 + r)^t$, where the final amount including the principal = principal multiplied by $(1 + \text{rate of interest per year})^{\text{(number of years invested)}}$

In order to compare simple interest and compound interest, it is important for students to understand the difference between simple interest and compound interest. Due to the formulas for these concepts, time is restricted to whole number years. However, instruction should include problems where time is given in months and where students must convert to years (e.g., 24 months is 2 years).

Students need to understand the following terms:

- Principal – initial money invested
- Interest – additional money earned from the principal
- Amount – total amount which is earned at the end of a specified time
- Interest earnings – the difference between the additional money earned from the principal and the original principal

Learning from Mistakes

Students may make the following mistakes:

- Not understanding that principal represents the initial money invested, not the additional money earned or the total amount
- Assuming compound interest earnings are always greater than simple interest earnings
- Not converting a percent (8.35%) to a decimal when solving for compound or simple interest earnings
- Not converting months to years when using the simple and compound interest formulas
- Multiplying by the amount of time when calculating compound interest, instead of applying the time as an exponent within the formula
- Confusing simple and compound interest formulas*

Academic Vocabulary

formulas:

- $I = Prt$
- $A = P(1 + r)^t$

compound interest
interest* rate
principal

simple interest*
time

Interesting Items

8.12(D) 2018 #12
8.12(D) 2017 #35
8.12(D) 2016 #41
8.12(D) 2015 #26

8.12(A)

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. The student is expected to:

(A) solve real-world problems comparing how interest rate and loan length affect the cost of credit

Role in Concept Development

Supports	8.12 Personal financial literacy
Connection/ Relevance	Solving real-world problems that compare how interest rate and loan length affect the cost of credit supports one’s ability to manage his or her financial resources more effectively for a lifetime of financial security.
When to Teach	With 8.12(A)
Instructional Implications	<p>Students should solve real-world problems that involve credit. Students should compare how the interest rate and the loan length affect the cost of credit. Instruction should include information on credit cards offered by local financial institutions. Since features, fees, and interest rates for credit cards vary among financial institutions, it is important for instruction to include information from several financial institutions.</p> <p>Instruction should require students to solve credit problems with different interest rates (e.g., 12.99%, 15%, etc.) and loan lengths (e.g., one month, two months, one year, etc.) so that students can make a comparison between the different interest rates/loan lengths and how these affect the credit cost. Problems may include interest rates and loan lengths compared separately or in combination.</p> <p>It is important students understand that interest is added to the unpaid balance on a credit card, and the total amount paid over a period of time will exceed the original amount borrowed.</p>
Learning from Mistakes	<p>Students may make the following mistakes:</p> <ul style="list-style-type: none"> Assuming that if an interest rate is lower, then the cost of credit will always be less Forgetting that interest is applied to credit in most situations

Stimulus

Word Problem*	Verbal Description*	Chart/Table	Graph
Equation/ Expression	Ordered Pairs	Diagram/Image	Number Line
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Item Types

Multiselect (2 pts)	Match Table Grid (2 pts)	Drag and Drop (1-2 pts)	Fraction Model (1-2 pts)
Hot Spot (1-2 pts)	Inline Choice (1-2 pts)	Number Line (1-2 pts)	Graphing (1-2 pts)
Text Entry (1-2 pts)	Equation Editor (1-2 pts)	Multiple Choice* (1 pt)	

Academic Vocabulary

compounded interest
interest rate
loan*
simple interest*

Interesting Items

8.12(A) 2017 #21

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. The student is expected to:

(C) explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time

Role in Concept Development

Supports 8.12 Personal financial literacy

Connection/Relevance Explaining how small amounts of money invested regularly grow over time supports one’s ability to manage his or her financial resources more effectively for a lifetime of financial security.

When to Teach With 8.12

Instructional Implications Students should explain how small amounts of money invested regularly grow over time. Instruction should include opportunities for students to gather different means for investing money on a regular basis from financial institutions or internet resources. Students should explain the impact small, regular investments have over a period of time.

Consider the example where an initial amount of \$500 is invested, simple interest ($I = Prt$) is calculated once a year, and a regular amount of \$50 per month is added to the account. Students may use a spreadsheet or online investment calculator to show the growth of the investment over a 10-year period.

Learning from Mistakes Students may make the following mistakes:

- Assuming that a larger sum of money invested later in an investment period will be more lucrative than regularly investing small amounts of money

Stimulus

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Item Types

Multiselect (2 pts)	Match Table Grid (2 pts)	Drag and Drop (1-2 pts)	Fraction Model (1-2 pts)
Hot Spot (1-2 pts)	Inline Choice (1-2 pts)	Number Line (1-2 pts)	Graphing (1-2 pts)
Text Entry (1-2 pts)	Equation Editor (1-2 pts)	Multiple Choice* (1 pt)	

Academic Vocabulary

interest rate
principal

Interesting Items

N/A

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. The student is expected to:

- 8.12(G) **(G) estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college**

Role in Concept Development

Supports	8.12 Personal financial literacy
Connection/Relevance	Estimating the cost and devising a periodic savings plan for accumulating the money needed to attend college supports one’s ability to manage his or her financial resources more effectively for a lifetime of financial security.
When to Teach	With 8.12
Instructional Implications	Students should estimate the cost of a two-year and four-year college education. Costs should include tuition, books, transportation, room and board, etc. Instruction should have students devise a periodic savings plan (e.g., family contribution, savings, grants, scholarships, student loans, and work-study) for accumulating the money needed to contribute to the total cost of attending at least the first year of college. Instruction may include having students use the internet to investigate different periodic savings plans and costs for various colleges.
Learning from Mistakes	<p>Students may make the following mistakes:</p> <ul style="list-style-type: none"> • Not considering all the expenses in the cost of attending a two- or four-year college • Assuming that the cost of the first year of a two-year college will always be cheaper than the first year of a four-year college

Stimulus

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Equation/Expression	Ordered Pairs	Diagram/Image	Number Line
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Item Types

Multiselect (2 pts)	Match Table Grid (2 pts)	Drag and Drop* (1-2 pts)	Fraction Model (1-2 pts)
Hot Spot (1-2 pts)	Inline Choice (1-2 pts)	Number Line (1-2 pts)	Graphing (1-2 pts)
Text Entry (1-2 pts)	Equation Editor (1-2 pts)	Multiple Choice* (1 pt)	

Academic Vocabulary

no vocabulary words

Interesting Items

- 8.12(G) 2017 #13
- 8.12(G) 2016 #18

- 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. The student is expected to:
- 8.12(B) **(B) calculate the total cost of repaying a loan, including credit cards and easy access loans, under various rates of interest and over different periods using an online calculator**

Role in Concept Development

Supports	8.12 Personal financial literacy
Connection/Relevance	Calculating the total cost of repaying a loan under different conditions supports one's ability to manage his or her financial resources more effectively for a lifetime of financial security.
When to Teach	With 8.12
Instructional Implications	Students should calculate the total cost of repaying a loan (e.g., credit cards and easy-access loans) under various rates of interest and over different periods of time using an online calculator. Instruction should include information on credit cards offered by local financial institutions. Since features, fees, and interest rates for credit cards vary among financial institutions, it is important for instruction to include information from several financial institutions. It is important for students to understand that interest is added to the unpaid balance on a credit card, and the total cost of repaying a loan over a period of time will exceed the original amount borrowed.
Learning from Mistakes	Students may make the following mistakes: <ul style="list-style-type: none"> Assuming that if an interest rate is lower, then the cost of the loan will always be less Forgetting that interest is applied to loans in most situations

Stimulus

Word Problem	Verbal Description	Chart/Table	Graph
Equation/Expression	Ordered Pairs	Diagram/Image	Number Line
Base Ten Blocks	Measurement Tool	Formula	Geometric Figures

Academic Vocabulary

interest rate
loan

8.12(E) **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. The student is expected to:
(E) identify and explain the advantages and disadvantages of different payment methods

Role in Concept Development

Supports 8.12 Personal financial literacy

Connection/Relevance Identifying and explaining advantages and disadvantages of different payment methods supports one’s ability to manage his or her financial resources more effectively for a lifetime of financial security.

When to Teach With 8.12

Instructional Implications Students identify and explain the advantages and disadvantages of different payment methods. Instruction should include information on different payment methods available to consumers. Payment methods in use around the world include the following: cash, money orders, checks, debit cards, credit cards, wire transfers, lines of credit, and electronic payment.

Instruction should also include opportunities for students to research and explain the advantages and disadvantages of different payment methods.

Stimulus

Word Problem	Verbal Description	Chart/Table	Graph
Equation/Expression	Ordered Pairs	Diagram/Image	Number Line
Base Ten Blocks	Measurement Tool	Formula	Geometric Figures

Payment Method	Advantage	Disadvantage
cash	<ul style="list-style-type: none"> Convenient Easy to use 	<ul style="list-style-type: none"> Theft/loss with no restitution options Carry large amounts Counterfeiting No written proof of payment unless receipt is given
check	<ul style="list-style-type: none"> Do not have to carry cash Easy to use Ability to cancel payment within a reasonable amount of time Written proof of payment 	<ul style="list-style-type: none"> Some businesses do not accept out of town, only local Charged fees for insufficient funds and/or cancellation of payment
credit card	<ul style="list-style-type: none"> Convenient Do not have to carry cash or checks Written proof of payment Ability to dispute payment charges 	<ul style="list-style-type: none"> Charged interest on unpaid balance Annual fee possible Inconvenient if card is lost
online banking	<ul style="list-style-type: none"> Faster way to make payments Do not have to have a credit card or cash Written proof of payment 	<ul style="list-style-type: none"> Sometimes charged a fee for transactions

Academic Vocabulary

no vocabulary words

Learning from Mistakes

Students may make the following mistakes:

- Assuming that credit cards and debit cards have the same advantages and disadvantages

- 8.12(F) **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. The student is expected to:
- (F) analyze situations to determine if they represent financially responsible decisions and identify the benefits of financial responsibility and the costs of financial irresponsibility**

Role in Concept Development

Supports	8.12 Personal financial literacy
Connection/Relevance	Analyzing situations to determine if situations represent financial responsibility supports one's ability to manage his or her financial resources more effectively for a lifetime of financial security.
When to Teach	With 8.12
Instructional Implications	<p>Students should analyze situations to determine if the situations represent financially responsible decisions (process of managing money and other assets in a manner that is considered productive and in the best interests of the individual). Being proficient at the task of finance and money management involves cultivating a mindset that makes it possible to look beyond the wants of today in order to provide for the needs of tomorrow.</p> <p>In order to achieve a high level of financial responsibility, it is necessary to understand the difference between needs and wants, establish and maintain a budget, pay off credit card balance monthly or within the terms of the credit agreement, and set aside a monthly amount for savings.</p> <p>Instruction should have students identify the benefits of financial responsibility (financial security) and the costs of financial irresponsibility (e.g., long-term debt, no savings for emergencies, no money for college fund, etc.).</p>
Learning from Mistakes	<p>Students may make the following mistakes:</p> <ul style="list-style-type: none"> Assuming that all debt is financially irresponsible

Stimulus

Word Problem	Verbal Description	Chart/Table	Graph
Equation/Expression	Ordered Pairs	Diagram/Image	Number Line
Base Ten Blocks	Measurement Tool	Formula	Geometric Figures

Academic Vocabulary

no vocabulary words