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Minnesota Council on
ECONOMIC
EDUCATION
Bringing Economics to Life

2019 REVISED EDITION

MAKING PERSONAL FINANCE DECISIONS

Making Personal Finance Decisions

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Developed in partnership with the Federal Reserve Bank of St. Louis.

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Introduction from the Minnesota Council on Economic Education

The Minnesota Council on Economic Education (MCEE) is pleased to partner with the Federal Reserve Bank of St. Louis to bring you this curriculum.

MCEE thanks Curt Anderson, Professor Emeritus and Morse-Alumni Distinguished Teacher of Economics and former Director of the Center for Economic Education at the University of Minnesota, Duluth, for creating these lessons. *Making Personal Finance Decisions* was many years in the making, and we're excited to bring it to you in this new format. MCEE also thanks the Federal Reserve Bank of St. Louis for partnering with us on this project, allowing more teachers to have access to this valuable resource.

The lessons are grounded in economic concepts and decisionmaking, with core principles that have students identifying and evaluating options and considering trade-offs and opportunity costs in personal finance actions. And, as in all curriculum developed by MCEE and the Federal Reserve Bank of St. Louis, the lessons are highly interactive, teaching personal finance concepts through simulations and hands-on activities.

We hope you find the curriculum as valuable as we do in teaching personal finance concepts that students need to succeed in today's complex economy.

Donald Liu, Ph.D.
Executive Director, Minnesota Council on Economic Education
Professor and Morse-Alumni Distinguished Teaching Professor
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Introduction from the Federal Reserve Bank of St. Louis

The *Making Personal Finance Decisions* curriculum teaches valuable personal finance lessons grounded in solid economic theory. The curriculum is divided into 10 units, with each unit containing two lessons. The 10 units follow a logical thought progression: Unit 1 establishes a solid foundation by introducing key ideas such as trade-offs, opportunity costs, and the PACED decision-making model. These concepts provide the framework for the topics that follow: planning and tracking goals, earning income, paying taxes, budgeting, saving, spending, investing, borrowing, and protecting from fraud and loss. The order of the units is not random: Income is earned and then taxed, people plan (budget) from there—for saving (future spending), (current) spending, investing, borrowing when necessary (to increase net worth), and finally to protect their health and assets with insurance and careful monitoring. This reasoned framework provides smooth transitions as students build and refine their personal finance skills.

These lessons were written by Curt Anderson, who has a gift for taking important concepts and turning them into active learning that results in "lightbulb moments" for students. The lessons were published by the Minnesota Council on Economic Education (MCEE) in 2012 and made available on their website. The economic education group at the Federal Reserve Bank of St. Louis (EconLowdown) approached the MCEE (and Curt) in 2016 about updating and republishing the curriculum—happily they agreed. The 20 revised lessons include these added components: essential questions; updated data; additional instructional supports (procedure steps, handouts, and visuals); assessment questions (with answers); alignment with standards; and professional editing, design, and layout.

EconLowdown and the MCEE share the conviction that personal finance is the application of economic theory, not a separate discipline. This curriculum is an exemplar: In the process of learning solid personal finance lessons, students will also learn core economic concepts (scarcity, opportunity cost, human capital, stock and flow variables, marginal thinking, and diminishing returns). As such, these lessons are appropriate for courses that might be identified as either "economics" or "personal finance."

We appreciate the dedication of the MCEE and the opportunity to partner on this project. Specifically, we thank Donald Liu and Jane Stockman for their work on this project. We are proud of these lessons, and we hope that they are useful to your work in the classroom.

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Federal Reserve Bank of St. Louis

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Acknowledgments

Lesson 1A:

The Wealth Game—Factors for Success

Rule 1: Think before you act.

Personal finance is largely about making decisions. Making good decisions involves determining your options, evaluating those options based on what is important to you, considering trade-offs ("weighing the gain and the pain"), and understanding that all decisions involve an opportunity cost. The lessons in Unit 1 introduce this process, which will be used in many of the *Making Personal Finance Decisions* units.

Lesson Description

Students play "The Wealth Game" (based on "Market Exchange and Wealth Distribution: A Classroom Simulation" by Robert B. Williams, *Journal of Economic Education*, Fall 1993). Students are given an initial set of colored beads with defined values that determine their wealth in one of three categories: poor, middle class, or rich. Their task is to increase their wealth by trading their beads with other students. Individual student outcomes of the game are discussed in terms of the four primary determinants of wealth: natural abilities, effort, motivation, and luck.

Standards and Benchmarks (see page 8)

Grade Level

9-12

Concept

Determinants of wealth: natural abilities, effort, motivation, and luck

Compelling Question

How do personal characteristics and skills affect a person's financial wealth?

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Objective

Students will be able to describe personal characteristics and skills important for financial success.

Materials

- 430 beads (for a class of 30) in 5 different colors and amounts: 140 orange, 120 blue, 90 yellow, 50 green, and 30 red (Other colors may be substituted, but note that these colors are the ones listed on Handout 1.)
- 30 plastic sandwich/snack bags
- Large opaque bag (e.g., a paper grocery bag)
- Handout 1A.1: The Wealth Game, one copy for each student
- Handout 1A:2: Assessment, one copy for each student
- Optional: small prizes for winners in three categories

Time Required

45 minutes

Preparation

Before class, place the colored beads in small plastic bags according to the table below. Plastic bags allow the students to easily see what they have without spilling. Create "Poor" bags for one-third of the class, "Middle-class" bags for one-third of the class, and "Rich" bags for one-third of the class.

(**Teacher note:** *Other distributions could be used to demonstrate the effect of different wealth distributions.*) Place the prepared plastic bags into a larger bag that students cannot see through (such as a paper grocery bag).

Initial Wealth			
Color	**Poor**	**Middle class**	**Rich**
Orange	5	5	4
Blue	2	5	5
Yellow	2	2	5
Green	1	2	2
Red	0	1	2

Procedure

1. Tell the class they are going to play a game called "The Wealth Game." Each student will receive a bag of beads that represents their wealth. The goal of the game it to increase their wealth by trading beads with other students in the room.

2. Have students randomly select a plastic bag of beads from the larger bag.

3. Distribute a copy of *Handout 1A.1: The Wealth Game* to each student. Explain that the handout describes how to calculate the total value of their beads. Note that the value depends not only on the number of each color of beads they have but also on the number of complete sets of three they have. (OPTIONAL: Show PowerPoint Slide 3, a chart of the following wealth-count example.) Use the following example to be sure students understand the scoring system:

   • Suppose you have 11 Blue beads and 2 Red beads. On the "Blue" line you write 11 under "Number."

   • Since you have *three* complete sets of three Blue beads (one short of having four), for Blue, you circle the "1" and the "2" and the "3" under "Sets of three."

   • You then add the numbers circled under "Sets of Three" and write the sum under "Bonus." In this case, the Bonus is 6 (1 + 2 + 3).

   • You then add the number to the Bonus and write the sum under "Total." In this case it is 17 (11 blue beads + 6 bonus points).

   • Since the value of Blue beads is 2, you multiply 17 by 2. You then write the product under "Points." In this case, it is 34.

   • For the Red beads, you write 2 under "Number." Since there are no complete sets of three, the Bonus would be 0 and the Total would be just 2 (2 + 0).

   • Since the value of a Red bead is 10, you multiply 10 by 2. You then write 20 under "Points."

   • You then add the points from the Blue and Red beads and write the sum on the "Total Wealth" line. In this case, Total Wealth is 54 (34 + 20).

   (**Teacher note:** *This system is a bit complicated by design to illustrate the effects of abilities and effort.*)

4. Have students calculate their initial wealth. They should have one of three totals: 25, 50, or 75 points. Go around the room and quickly check. If any students have another value, help them recalculate. (OPTIONAL: Show Slides 4-6, the poor, middle-class, and rich wealth counts, respectively, to allow students to check their work.) NOTE: Some students will have trouble with the necessary calculations, but it is important for them to start with the correct value.

5. Explain the game:

   • Their initial wealth was essentially based on luck (they drew from a bag).

   • There are three categories of wealth: poor (25 points), middle class (50 points), and rich (75 points).

- The goal of the game is to increase their wealth points by trading with other students in the room.

- The scoring system is based not only on bead color but also how many sets of three they have.

- They may trade with anyone in the room and can make any type of trade (any number of beads for any number of beads).

- They are competing, however, against *only* the students in their own wealth category, so there will be three winners—one in each category.

6. Allow students 5 to 10 minutes for trading.

7. Stop trading. (OPTIONAL: Show Slide 7, a post-trading wealth-count example.) Have students determine their Round 1 Wealth (the value of their beads) on Handout 1A.1. Have students exchange their sheets and bags with another student to "audit" the results. Most students should have increased the value of their beads. If not, it means they made a trade that actually made them poorer. Note that since all trades are voluntary, both traders should have gained from the trading.

8. Resume trading for another 5 to 10 minutes. (Option: Have just one trading round. The advantage of stopping in the middle is that it allows some students a moment to think about what they have done and need to do to increase their wealth.)

9. Stop trading and have students determine their Round 2 Wealth on Handout 1A.1. Again have students exchange sheets and bags to audit each other's results.

10. Have each student in each wealth group (poor, middle class, and rich) report his or her final wealth. Determine who in each wealth class increased the value of his or her bag the most. (Optional: Award prizes to those students. Most students will have increased the value of their beads, some to the next wealth category. Those initially rich will have likely increased the value of their beads by both the largest absolute and relative amount, where the relative amount is the percentage change.)

11. Discuss the four most important factors in determining how much a student increased his or her wealth:

- How was **luck** involved? (*Luck was involved in the initial wealth and finding the right trading partners.*)

- How were **natural abilities** involved? (*Natural abilities, such as quickly figuring out which trades were beneficial and bargaining/negotiating skills, vary and some students likely have more natural abilities than others.*)

- How was **effort** involved? (*Effort to figure things out, find trades, and keep playing had an effect on the outcomes.*)

- How was **motivation** involved? (*The desire to improve their position, win a prize, and succeed likely drove some students to increase their wealth.*)

Closure

12. Explain that these exact same factors will be important in the students' financial success. They are the basic **determinants of wealth**. While luck will play a role (being born into a wealthy family/nation or having the right connections to land a job), they can still be successful by acquiring education and training (which increases their skills), putting forth their best efforts (studying hard and working hard), and staying motivated (not giving up and not settling for less than they want).

Assessment

13. Display the chart "Earnings and unemployment rates by educational attainment" at http://www.bls.gov/emp/ep_chart_001.htm. Explain that one of the determinants of income and wealth is level of education, which includes a combination of some of the determinants of wealth—natural abilities, effort, and motivation. Although pursuing education beyond high school can be a major expense, it can also pay off. Review the chart.

14. Distribute a copy of *Handout 1A.2: Assessment* to each student and allow time for students to work (or assign as homework).

Handout 1A.2: Assessment—Answer Key

Directions: Write paragraphs to answer each of the following questions:

- What is the general relationship between education, unemployment, and income? How does this relationship reflect the basic determinants of wealth—luck, natural abilities, effort, and motivation—discussed in the lesson? (*Answers will vary but may be similar to the following: Generally speaking, as a person's level of education increases, so does income. And, the unemployment rate tends to be lower for those with higher levels of education. People with higher levels of educational attainment will likely earn a higher income and have an easier time finding a job. The basic determinants of wealth—luck, natural abilities, effort, and motivation—contribute to a students' ability to earn a college degree and to succeed as an employee or business owner. For example, a talented student who is motivated and works hard will likely excel in college, and those same characteristics will likely lead to a successful career after graduation.*)

- Why might college be a worthwhile investment even after accounting for the cost? (*Answers will vary but may be similar to the following: College is expensive. However, the higher income earned over an entire career [perhaps 40 years or more] by those with more education and training will likely far exceed the cost of going to college. In this way, education can be seen as an investment—the money you pay up front may yield higher income in the future.*)

Handout 1A.1: The Wealth Game   Name:_____

The goal of the game is to increase your wealth by trading your beads with other students in the room. Your initial wealth will be poor (25 points), middle class (50 points), or rich (75 points).

Directions for Determining the Total Value of Your Beads

1. Count the number of beads of each color and write each total in the "Number" column.
2. Count the number of complete sets of three of each color and circle a number for each set under "Sets of Three." (For example, if you have three complete sets of three, you would circle "1," "2," and "3.")
3. Add the circled numbers for each color and enter the sums in the "Bonus" column.
4. Add the "Number" and "Bonus" for each color and enter the sums in the "Total" column.
5. Multiply the "Total" by "Value" for each color and enter the products in the "Points" column.
6. Finally, add all of the "Points" and enter the sum on the "Total Wealth" line.

Wealth Category: _____

Initial Wealth						
Color	Number	Sets of Three	Bonus	Total	Value	Points
Orange		1 2 3 4 5			× 1	=
Blue		1 2 3 4 5			× 2	=
Yellow		1 2 3 4 5			× 4	=
Green		1 2 3 4 5			× 7	=
Red		1 2 3 4 5			× 10	=
					Total Wealth	=

Round 1 Wealth						
Color	Number	Sets of Three	Bonus	Total	Value	Points
Orange		1 2 3 4 5			× 1	=
Blue		1 2 3 4 5			× 2	=
Yellow		1 2 3 4 5			× 4	=
Green		1 2 3 4 5			× 7	=
Red		1 2 3 4 5			× 10	=
					Total Wealth	=

Round 2 Wealth						
Color	Number	Sets of Three	Bonus	Total	Value	Points
Orange		1 2 3 4 5			× 1	=
Blue		1 2 3 4 5			× 2	=
Yellow		1 2 3 4 5			× 4	=
Green		1 2 3 4 5			× 7	=
Red		1 2 3 4 5			× 10	=
					Total Wealth	=

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Handout 1A.2: Assessment   Name:_____

Directions: Write paragraphs to answer each of the following questions:

- What is the general relationship between education, unemployment, and income? How does this relationship reflect the basic determinants of wealth—luck, natural abilities, effort, and motivation—discussed in the lesson?

- Why might college be a worthwhile investment even after accounting for the cost?

Standards and Benchmarks

Voluntary National Content Standards in Economics

Standard 13: Income. Income for most people is determined by the market value of the productive resources they sell. What workers earn primarily depends on the market value of what they produce.

- Benchmarks: Grade 8

    4. More productive workers are likely to be of greater value to employers and earn higher wages than less productive workers.

    5. Peoples' incomes, in part, reflect choices they have made about education, training, skill development, and careers. People with few skills are more likely to be poor.

- Benchmark: Grade 12

    3. The hope of achieving wealth can affect productivity by energizing people to work harder, while the hopelessness of escaping poverty can discourage people from trying.

Lesson 1B:
Making Choices and Identifying Costs

Rule 1: Think before you act.

Personal finance is largely about making decisions. Making good decisions involves determining your options, evaluating those options based on what is important to you, considering trade-offs ("weighing the gain and the pain"), and understanding that all decisions involve an opportunity cost. The lessons in Unit 1 introduce this process, which will be used in many of the *Making Personal Finance Decisions* units.

Lesson Description

Students are introduced to the PACED decisionmaking model and grid as a guide to making personal finance choices. The grid is used to evaluate product choices based on ratings from *Consumer Reports*® and to demonstrate trade-offs and opportunity costs.

Standards and Benchmarks (see page 18)

Grade Level

9-12

Concepts

Alternatives

Compound interest

Criteria

Opportunity cost

Trade-off

Compelling Question

How can a decisionmaking process help you make informed decisions?

Objectives

Students will be able to

- describe the five steps of the PACED decisionmaking model and illustrate it with a grid and

- distinguish the trade-offs associated with making choices by identifying opportunity costs of choices.

Materials

- "Smart" by Shel Silverstein (The poem is in *Where the Sidewalk Ends* [HarperCollins, 1974] and can be easily found with an internet search)

- Visual 1B.1: PACED Decisionmaking Model

- Visual 1B.2: Smoke or Be a Millionaire?

- Handout 1B.1: Assessment, one copy for each student and one copy for the teacher to use as a visual

- A product rating table copied from *Consumer Reports* to display for the class or copies of such tables to be distributed to students

Time Required

45 minutes

Procedure

1. Read the poem, "Smart," to the class. (This short poem humorously shows how a boy turns a dollar given to him by his father into five pennies by making some questionable choices.) Discuss the following:

   - Did the boy think he had made good decisions when he traded? (*Yes, the boy thought his decisions were smart.*)

   - Did he make good decisions? (*Most students will recognize that he clearly did not.*)

2. Explain that there is a process that can help the students think through options to help them make good decisions.

3. Display *Visual 1B.1: PACED Decisionmaking Model.* Explain that PACED is an acronym for the five steps: **P**roblem, **A**lternatives, **C**riteria, **E**valuation, and **D**ecision. Discuss

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each step of the PACED decisionmaking model as described on the visual and define the following as mentioned:

- **Alternatives** are the different possibilities to choose from in a given situation.

- **Criteria** are a set of standards to consider when choosing among alternatives. Criteria are the things important to you when making a decision.

4. Display *Handout 1B.1: Assessment*. Explain that the grid illustrates the PACED decision-making model as follows:

- The problem is stated at the top.

- The alternatives are listed in the rows down the left side, while the criteria are listed in the columns across the top.

- In each cell in the grid (where a row intersects a column), you evaluate how well each alternative satisfies each criterion.

- This evaluation can be represented in different ways. For example, you could enter a plus sign (+) if an alternative satisfies a criterion or a minus sign (–) if it doesn't. You could also use a numerical rating system.

- Filling out the grid when you make a decision can help you decide which alternative is the best choice.

5. Show a product rating from *Consumer Reports* (or distribute copies of such tables). Explain that these tables are examples of the PACED model:

- The problem for consumers is which model of a particular product they should buy.

- Along the left side of the table you see the alternatives. These are typically the various models or brands of a given product.

- Along the top of the table you see criteria that are factors consumers might consider important in ranking the alternatives.

- The cells of the table show how well each alternative meets each criterion according to some system of measurement. Some evaluations use colored circles and others simply list the relevant data—price, size, and so on. These evaluations are based on *Consumer Reports* tests (which are described at the bottom of the table or in the accompanying article).

6. Discuss the following:

- Given this table and all its information, does everyone make the same choice? (*Answers will vary, but most students will realize that they do not.*)

- Why don't people make the same choice? (*People do not necessarily weight all the criteria the same. Some may only be looking for the lowest price, others may be looking for the highest quality rating, while others may consider two or more of the criteria.*)

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7. Explain the following:

    •   The PACED decisionmaking grid allows people to consider the trade-offs involved in their decisions.

    •   A **trade-off** exists when you give up some of one thing in order to gain some of something else. For example, in choosing a car, Model A might give you better gas mileage than Model B, but Model B might give you more horsepower or more room.

    •   The evaluation in the body of the grid helps point out the trade-offs so that the decision comes down to which alternative is more valuable to you. For example, better gas mileage or more horsepower or room?

    •   The choice depends on each person's own tastes and preferences—some might value better gas mileage, while others might value the extra horsepower or room.

    •   So, people end up making different choices, even though they may be looking at the same trade-offs.

    •   Informed decisionmaking is not about finding the right choice for everyone, but identifying and considering the relevant trade-offs and making the right choice for you.

8. Define **opportunity cost** as the value of the next-best alternative when a decision is made; it's what is given up. Explain that in the earlier example, if you had chosen the car with the better gas mileage, you would have given up the opportunity to enjoy the greater horsepower and room of the other model. Every time you make a choice, you have an opportunity cost. Discuss the following:

    •   What is the opportunity cost of you being in school today? (*Answers will vary, but their opportunity cost would be whatever they would have chosen to do instead of being in school—playing video games, hanging out with friends, going to a movie marathon, and so on.*)

    •   Remind students that the benefit of being in school—learning new things and developing valuable skills—is worth this cost!

9. Tell the students they are going to practice identifying opportunity costs. Discuss the following scenarios:

    •   What is the opportunity cost of buying a new video game? (*When you use your money to buy a video game, you give up the opportunity to purchase other goods and/or services with that money. The next-best goods and/or services you could have spent that money on would be the opportunity cost of the new game.*)

    •   What is the opportunity cost of not paying your bills on time? (*You lose the opportunity to have a good credit score and will end up paying higher interest rates on loans in the future. And, you give up the goods and services you might have purchased with the money you pay in penalties and fees.*)

- What is the opportunity cost of spending your money now instead of saving? (*You lose the opportunity to purchase even more goods and services later.*)

10. Explain that in each of these decisions something is gained (education, video game, more money from not paying bills, and enjoying goods and services now), but something is also lost. That loss is the opportunity cost, and it is important to consider if it is worth the gain in each case. Discuss the following:

    - What is the opportunity cost of smoking? (*Clearly there are health consequences and a potentially shorter life span.*)

11. Display *Visual 1B.2: Smoke or Be a Millionaire?* Explain that when someone chooses to smoke, he or she may be giving up the opportunity to be a millionaire. The table shows what would happen if, instead of starting to smoke one pack of cigarettes per day at age 18 (spending $6.00 per pack), a person saved that amount and invested it at a 9 percent annual interest rate and continued to do so until age 62 (a popular retirement age). This person would end up a millionaire by age 61 (and lower the risk from dying earlier) just by not smoking. Discuss the following:

    - How much is deposited per year? (*$2,190.00*)

    - After 45 years (age 62), how much money has been deposited? (*$98,550.00*)

    - How much money is in the account at age 62, after 45 years of saving? (*$1,151,630.63*)

    - Where did the $1,053,080.63 difference between the amount deposited and the final balance come from? (*Interest, more specifically compound interest*)

    - Explain that **compound interest** is interest computed on the sum of the original principal and accrued interest. So, with compound interest, when the saver leaves the money in the account, the saver earns money on all the money deposited, plus all the interest earned in prior years.

    - The "Annual deposit" column represents the money saved and deposited in the account. The "Annual interest" column represents the amount of interest the account earns per year. At what age does the earned interest contribute more annually to the account than the saver does? (*At age 27, the saver earns $2,566.45 in interest, which is more than the $2,190.00 deposited.*)

    - How much interest does the account generate the year the saver is age 62? (*$94,907.94*)

    - Note that given the rising price of a pack of cigarettes, if the smoker instead saved a higher amount, at the same interest rate, the smoker would become a millionaire sooner or reach a million dollars sooner—even if the interest rate was less than 9 percent!

    - Another opportunity cost of smoking could be losing the chance to be a millionaire.

    - Considering all the opportunity costs, the benefits of smoking need to be larger

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and larger to make it a good choice.

- Consider the opportunity cost of a $6.00 latte every day. If you saved the money instead, at a 9 percent interest rate, you could also be a millionaire at 62!

Closure

12. Explain that good decisionmaking is essential for managing your personal finances well—that is, how you will save and spend your money. The rest of this course will cover the following topics to help the students better understand how to make good financial decisions:

- Budgeting—how to plan saving and spending to live within your means

- Saving—why it's important to start early and how money can grow

- Investing in human capital—how education can increase your income and reduce your likelihood of unemployment

- Entrepreneurship—what it takes to be a successful entrepreneur

- Taxes—what they are and why we pay them

- Spending—how to get the best value for your money

- Investing—the potential risks and rewards

- Using credit (borrowing)—when it might be a good idea (e.g., for schooling or a home) and when to use caution

- Maintaining good credit—how to do it and why it's important

Assessment

13. Distribute a copy of *Handout 1B.1: Assessment* to each student and allow time for students to work (or assign as homework).

14. After students complete Handout 1B.1, discuss the following:

- Did you find the PACED model helpful? (*Answers will vary.*)

- What is the opportunity cost of your decision? (*It will be the next-best alternative.*)

- What trade-offs did you make as a result of your decision? (*Answers will vary.*)

Visual 1B.1: PACED Decisionmaking Model

Step 1: P—Define the <u>P</u>roblem.

Why must you make a choice?

Step 2: A—List the <u>A</u>lternatives.

What are your possible options?

Step 3: C—Determine the <u>C</u>riteria.

What standards are important to you?

Step 4: E—<u>E</u>valuate the Alternatives.

How well does each alternative meet each criterion?

Step 5: D—Make the <u>D</u>ecision.

Which option has the most favorable trade-offs?

Visual 1B.2: Smoke or Be a Millionaire?

	$6 × 365 days = $2,190 per year					
	Annual deposit ($)	Total deposits ($)	Balance plus 9% interest ($)	Annual interest ($)	Total interest/ Return ($)	Year-end balance ($)
18	2,190.00	2,190.00	—	—	—	2,190.00
19	2,190.00	4,380.00	2,387.10	197.10	197.10	4,577.10
20	2,190.00	6,570.00	4,989.04	411.94	609.04	7,179.04
21	2,190.00	8,760.00	7,825.15	646.11	1,255.15	10,015.15
22	2,190.00	10,950.00	10,916.52	901.36	2,156.52	13,106.52
23	2,190.00	13,140.00	14,286.10	1,179.59	3,336.10	16,476.10
24	2,190.00	15,330.00	17,958.95	1,482.85	4,818.95	20,148.95
25	2,190.00	17,520.00	21,962.36	1,813.41	6,632.36	24,152.36
26	2,190.00	19,710.00	26,326.07	2,173.71	8,806.07	28,516.07
27	2,190.00	21,900.00	31,082.52	2,566.45	11,372.52	33,272.52
28	2,190.00	24,090.00	36,267.04	2,994.53	14,367.04	38,457.04
29	2,190.00	26,280.00	41,918.18	3,461.13	17,828.18	44,108.18
30	2,190.00	28,470.00	48,077.91	3,969.74	21,797.91	50,267.91
31	2,190.00	30,660.00	54,792.02	4,524.11	26,322.02	56,982.02
32	2,190.00	32,850.00	62,110.41	5,128.38	31,450.41	64,300.41
33	2,190.00	35,040.00	70,087.44	5,787.04	37,237.44	72,277.44
34	2,190.00	37,230.00	78,782.41	6,504.97	43,742.41	80,972.41
35	2,190.00	39,420.00	88,259.93	7,287.52	51,029.93	90,449.93
36	2,190.00	41,610.00	98,590.42	8,140.49	59,170.42	100,780.42
37	2,190.00	43,800.00	109,850.66	9,070.24	68,240.66	112,040.66
38	2,190.00	45,990.00	122,124.32	10,083.66	78,324.32	124,314.32
39	2,190.00	48,180.00	135,502.61	11,188.29	89,512.61	137,692.61
40	2,190.00	50,370.00	150,084.95	12,392.33	101,904.95	152,274.95
41	2,190.00	52,560.00	165,979.69	13,704.75	115,609.69	168,169.69
42	2,190.00	54,750.00	183,304.96	15,135.27	130,744.96	185,494.96
43	2,190.00	56,940.00	202,189.51	16,694.55	147,439.51	204,379.51
44	2,190.00	59,130.00	222,773.67	18,394.16	165,833.67	224,963.67
45	2,190.00	61,320.00	245,210.40	20,246.73	186,080.40	247,400.40
46	2,190.00	63,510.00	269,666.43	22,266.04	208,346.43	271,856.43
47	2,190.00	65,700.00	296,323.51	24,467.08	232,813.51	298,513.51
48	2,190.00	67,890.00	325,379.73	26,866.22	259,679.73	327,569.73
49	2,190.00	70,080.00	357,051.00	29,481.28	289,161.00	359,241.00
50	2,190.00	72,270.00	391,572.69	32,331.69	321,492.69	393,762.69
51	2,190.00	74,460.00	429,201.33	35,438.64	356,931.33	431,391.33
52	2,190.00	76,650.00	470,216.55	38,825.22	395,756.55	472,406.55
53	2,190.00	78,840.00	514,923.14	42,516.59	438,273.14	517,113.14
54	2,190.00	81,030.00	563,653.33	46,540.18	484,813.33	565,843.33
55	2,190.00	83,220.00	616,769.22	50,925.90	535,739.22	618,959.22
56	2,190.00	85,410.00	674,665.55	55,706.33	591,445.55	676,855.55
57	2,190.00	87,600.00	737,772.55	60,917.00	652,362.55	739,962.55
58	2,190.00	89,790.00	806,559.18	66,596.63	718,959.18	808,749.18
59	2,190.00	91,980.00	881,536.61	72,787.43	791,746.61	883,726.61
60	2,190.00	94,170.00	963,262.01	79,535.40	871,282.01	965,452.01
61	2,190.00	96,360.00	1,052,342.69	86,890.68	958,172.69	1,054,532.69
62	2,190.00	98,550.00	1,149,440.63	94,907.94	1,053,080.63	1,151,630.63

NOTE: As of April 1, 2016, the average price of cigarettes was $5.96 per pack. The average stock market return over the past 50 years (1966-2015) was 9.61 percent.

SOURCE: Cigarette prices: https://www.tobaccofreekids.org/research/factsheets/pdf/0202.pdf, accessed April 1, 2016. Stock return average: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html, accessed April 1, 2016.

Making Personal Finance Decisions

Handout 1B.1: Assessment   Name:_____

Directions: Navigate to the U.S. Department of Education College Navigator website at https://nces.ed.gov/collegenavigator/. Use the information on the website to complete the PACED decisionmaking grid: (i) find four colleges you might be interested in attending (your alternatives), (i) determine the things important to you in choosing a college (your criteria), and (iii) decide which option is best. Write a paragraph describing the process you used to make your decision.

Problem: _____

Criteria / Alternatives	1.	2.	3.	4.
1.				
2.				
3.				
4.				

Decision: _____

Making Personal Finance Decisions

Standard and Benchmarks

National Standards for Financial Literacy

Standard 2: Buying Goods and Services. People cannot buy or make all the goods and services they want; as a result, people choose to buy some goods and services but not others. People can improve their economic well-being by making informed spending decisions, which entails collecting information, planning, and budgeting.

- Benchmark: Grade 4

    4. Whenever people buy something, they incur an opportunity cost. Opportunity cost is the value of the next-best alternative that is given up when a person makes a choice.

- Benchmark: Grade 12

    3. When buying a good, consumers may consider various aspects of the product including the product's features. For goods that last for a longer period of time, the consumer should consider the product's durability and maintenance costs.

Voluntary National Content Standards in Economics

Standard 1: Scarcity. Productive resources are limited. Therefore, people cannot have all the goods and services they want; as a result, they must choose some things and give up others.

- Benchmarks: Grade 8

    2. Making good choices should involve trading off the expected value of one opportunity against the expected value of its best alternative.

    4. The evaluation of choices and opportunity costs is subjective; such evaluations differ across individuals and societies.

Standard 2: Decision Making. Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Many choices involve doing a little more or a little less of something: few choices are "all or nothing" decisions.

- Benchmarks: Grade 4

    1. Choices involve getting more of one thing by giving up something else.

    2. A cost is what you give up when you decide to do something. A benefit is what satisfies your wants.

Lesson 2A:

The Inventory Game—Net Worth and Cash Flow

Rule 2: Have a Plan.

Financial success depends primarily on two things: (i) developing a plan to meet your established goals and (ii) tracking your progress with respect to that plan. Too often people set vague goals ("I want to be rich."), make unrealistic plans, or never bother to assess the progress toward their goals. These lessons look at important financial indicators you should understand and monitor both in setting goals and attaining them.

Lesson Description

Students physically move into and out of a "wallet" (a specified area in the room) and note the change in the number of students in the wallet over time, as well as the inflow and outflow rates. This demonstration is then related to the stock (an amount at a point in time) concepts of assets and liabilities and the flow (an amount per unit of time) concepts of income and expenses. Students use this distinction to determine net worth, cash flow, and the relationship between them.

Standards and Benchmarks (see page 35)

Grade Level

9-12

Concepts

Assets
Cash flow
Expenses
Flows
Income
Liabilities
Net worth
Stocks

Compelling Question

How do cash inflows and outflows affect a person's net worth?

Objectives

Students will be able to

- distinguish between stock and flow concepts,

- describe net worth as the value of a person's assets minus the value of the individual's liabilities at a point in time,

- provide examples of assets and liabilities,

- describe cash flow as the difference between a person's income and expenses over a given period, and

- provide examples of income and expenses over a given period.

Materials

- Handout 2A.1: Classroom Station Signs, one copy cut into signs

- Handout 2A.2: Activity Prompts, one copy cut into cards

- Handout 2A.3: Net Worth and Cash Flow, one copy for each student

- Handout 2A.3: Net Worth and Cash Flow—Answer Key

- Handout 2A.4: Assessment, one copy for each student

- Two timekeeping devices or a classroom clock that tracks seconds

- Masking tape to mark off an area on the classroom floor

- "IN" sign and "OUT" sign

Time Required

45 minutes

Preparation

Using masking tape, mark off an area of the classroom large enough to hold one-third to one-half of the students in the class. Mark an entrance on one side of this area with an "IN" sign and an exit on the opposite side with an "OUT" sign.

Procedure

1. Tell students the designated (taped-off) area is a wallet. Explain the following:

    *   The class will be investigating the effect on the number of dollars in the wallet as a result of changing the rate at which dollars move into and out of the wallet.

    *   There will be five separate rounds of two minutes each.

    *   Each student represents one dollar.

    *   There will be two timekeepers, one at the "IN" entrance and one at the "OUT" exit.

    *   The timekeepers will tell students when to move into or out of the wallet by saying "IN" or "OUT" at designated time intervals.

    *   Once students move out of the wallet, they are to get back in the line at the "IN" entrance.

    *   The same number of students (dollars) will start in the wallet at the beginning of each round.

2. Move students into position as follows:

    *   Have one-third to one-half of the students in the class stand in the wallet. (Remember, you will start each round with the same number of students/dollars in the wallet.)

    *   Note the number of students in the wallet by writing it on the board.

    *   Assign one student with a watch (or view of a clock) to stand at the "IN" sign and another student with a watch (or view of a clock) to stand at the "OUT" sign.

    *   Have the remainder of the class form a single-file line outside the "IN" entrance.

3. At the beginning of each two-minute round, tell the timekeepers the following time intervals for the given round (the numbers in parentheses are the expected change in the number of students in the wallet during that round). At the end of each round, record on the board the number of students in the wallet. (Option: Complete only the first four rounds and have the students predict the results of the fifth round given the rates already recorded.)

    Round 1   IN: One every 12 seconds

    OUT: One every 12 seconds

    (0)

    Round 2   IN: One every 10 seconds

    OUT: One every 12 seconds

    (+2)

Making Personal Finance Decisions

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Round 3   IN: One every 10 seconds

OUT: One every 15 seconds

(+4)

Round 4   IN: One every 15 seconds

OUT: One every 10 seconds

(–4)

Round 5   IN: Three every 20 seconds

OUT: Two every 10 seconds

(–6)

4.   After the final round, discuss the following:

   •   What impact did changing the inflow and outflow rate of students/dollars have on the number of students/dollars in the wallet? (*When the inflow rate exceeds the outflow rate [Rounds 2 and 3], the number of students/dollars in the wallet grows; conversely, when the outflow rate exceeds the inflow rate, the number of students/dollars in the wallet falls [Rounds 4 and 5]. When the inflow and outflow rates are equal, the number of students/dollars in the wallet remains unchanged [Round 1].*)

5.   Explain that the wallet demonstration illustrated two economics concepts: **flows** and **stocks**. Flows are based on units of time. For example, a given number of students/dollars flowed into the wallet each minute. Stocks are the inventory, or stock, of dollars at a given time. In this case, the stocks are the number of the students/dollars in the wallet at any given time.

6.   Discuss the following:

   •   What are some examples of an inflow of money? (*Answers will vary, but use the following as an example: A person's income from working—for example, $500 per week—or the interest he or she earns on his or her savings account—for example, $50 per quarter—would be inflow. Note the time element of these payments.*)

   •   What are some examples of an outflow of money? (*Answers will vary, but use the following as an example: Expenditures that a person makes—for example, a cell phone bill of $40 per month, a rental payment of $400 per month, or an auto insurance payment of $300 every six months—would be outflows. Again, emphasize the time element involved in these payments.*)

7.   Explain that the dollars in the wallet represent a person's wealth. What does the demonstration suggest about how you can grow your wealth over time? (*Your inflow—or income—needs to exceed your outflows, or expenditures.*)

Making Personal Finance Decisions

8. Explain the following:

   - Your wealth is typically measured by your **net worth**. Net worth is the value of a person's **assets** minus the value of his or her **liabilities**. Your assets are things that you *own* such as a house, stocks, bonds, jewelry, cars, money in a savings account, or cash.

   - Your liabilities are things you *owe*, such as unpaid bills, a mortgage, a car loan, or unpaid taxes.

   - Your **cash flow** is defined as your **income** (dollars coming in, usually from working) minus your **expenses** (dollars going out, usually to buy goods and services). Since income and expenses are both flows, they often have a time element associated with them. If your cash flow is *positive*—that is, your income exceeds your expenses over a given period—then, as the wallet demonstration showed, your net worth will tend to rise. Conversely, if your cash flow is *negative*, your net worth will tend to fall.

   - An important element of financial planning is keeping track of these two things: your net worth (a statement of your assets and liabilities) and your cash flow (your monthly budget or flow of funds).

9. Tape the signs (expenses, income, assets, and liabilities) from *Handout 2A:1: Classroom Station Signs* in the four corners of the room.

10. Distribute one prompt card from *Handout 2A:2: Activity Prompts* to each student. **NOTE:** All prompts do not need to be used, but be sure to use *all of the prompts with a black square*. Instruct the students to read the prompt received, then think about whether the text describes an expense, income, asset, or liability. After they decide, they should stand by the sign that best describes what is printed on their prompt.

11. Once students have found their stations, explain that all of the cards together represent the expenses, income, assets, and liabilities of one person. Have each student read what is printed on his or her prompt and explain why he or she chose the sign they are standing by. If students are standing by the wrong sign, ask the other students for guidance.

Making Personal Finance Decisions

Expenses	Income
Cable/internet $100/month	Income from side job $250/month
Car loan payment $400/month	Interest on savings $60/quarter ($20/month)
Cell phone service $60/month	Stock dividends $75/quarter ($25/month)
Doctor visits . . . .$60/month after insurance	Wages . . . .$36,000/year ($3,000/month)*
Electricity bill $60/month	**Total $3,295/month**
Gasoline $75/month	
Groceries $200/week ($800/month)	*After income and payroll taxes
Health club membership $40/month	
Insurance premiums $100/month	
Mortgage payment $1,400/month	
Property taxes $300/quarter ($100/month)	
Streaming television service $20/month	
Total $3,215/month	

Assets	Liabilities
50-inch TV $700	Car loan balance $5,000
Car value $9,000	Credit card balance $1,600
Certificate of deposit $2,000	Emergency credit card balance $500
Emergency cash $600	Mortgage balance $150,000
Gold coins $2,500	Unpaid IOU $1,000
House value $200,000	**Total $158,100**
Motor scooter value $500	
Savings $4,000	
Stocks owned $10,000	
Total $229,300	

12. Instruct the groups to now calculate a total for their category. Remind the students that some income and expenses will need to be converted to monthly values. The information will then be used to calculate the person's net worth and cash flow.

13. Allow time for the groups to work, then write "Net worth = Assets – Liabilities" and "Cash flow = Income – Expenses" on the board. Discuss the following:

   •   What are the person's total assets and total liabilities? (*If all prompts were used, as shown above, the total assets are $229,300 and total liabilities are $158,100. However, answers will vary depending on how many and which prompts were used.*)

   •   What is this person's net worth? (*If all prompts were used, $229,300 – $158,100 = $71,200.*)

- What are this person's total income and total expenses? (*If all prompts were used, total income is $3,295/month and total expenses are $3,215/month.*)

- What is this person's cash flow? (*If all prompts were used, income exceeds expenses by $80 per month.*)

- Is this person's net worth likely to increase or decrease over time? (*If all prompts were used, the person's net worth will likely increase because the person's income exceeds expenses, which means savings will grow.*)

14. Distribute a copy of *Handout 2A.3: Net Worth and Cash Flow* to each student. Divide the class into small groups of three to four students and instruct them to complete Part A of the handout.

15. Display Part A of *Handout 2A.3: Net Worth and Cash Flow—Answer Key* and discuss the answers. (Note that all income and expense items have a time period associated with them, while the asset and liability items do not.)

16. Have the groups complete Parts B and C of Handout 2A.3 (after correcting any errors in Part A).

17. Display Parts B and C (page 2 of 2) of *Handout 2A.3: Net Worth and Cash Flow—Answer Key* and discuss the answers. Explain the following:

- Since this person's monthly expenses (outflow) exceed his or her monthly income (inflow), his or her net worth will fall over time if nothing changes.

- The person will have to draw down his or her savings account, increase the balance on his or her credit card, or get a new loan. If the cash-flow situation isn't changed, each of those options would lower the person's net worth.

- If the value of this person's assets or liabilities changes over time—for example, the value of his or her stock rises—then it is possible that the person's net worth will not fall. However, this is still not a good cash-flow situation if the person wants his or her net worth to grow.

18. Discuss the following:

- Why would people want to increase their net worth? (*A larger net worth offers greater financial security, which most people desire. Should unexpected expenses occur, it provides a means to pay them. A larger net worth also provides greater financial opportunities—for example, to take advantage of good deals, invest in new opportunities, or even lower their insurance premiums by raising their deductibles.*)

Making Personal Finance Decisions

Closure

19. Explain the following:

- In personal finance, it is important to know your financial situation. The two basic measures of your financial situation are your net worth and cash flow.

- Your net worth is a stock, or inventory, that tells you where you currently stand financially.

- Your cash flow is a measure that gives you a good indication of how the first measure is likely to change over time.

- If your inflow (your income) exceeds your outflow (your expenses), your net worth is likely to rise over time.

- If, however, your outflow (your expenses) exceeds your inflow (your income), your net worth is likely to fall over time.

20. Tell the students you will read three scenarios. They are to give a thumbs-up if they predict that cash flow or net worth will increase or a thumbs-down if they predict that cash flow or net worth will decrease. Tell them a pencil and paper might be useful.

- Sam has a part-time job earning $75 dollars after taxes each week. Sam spends $30 a week on gas, food, and entertainment.

  ○ Is Sam's cash flow positive (thumbs-up) or negative (thumbs-down)? (*Positive—thumbs-up*)

  ○ What is likely to happen to Sam's net worth as a result? (*Increase—thumbs-up*)

- Madison has a part time job during the school year. She earns $200 per *month*. Her cell phone bill is $75 per *month*, and she spends $50 per *week* on snacks, movies, and having fun with friends.

  ○ Is Madison's cash flow positive (thumbs-up) or negative (thumbs-down)? (*Madison's inflow is $200 per month; her outflow is $275 per month. Negative—thumbs-down*)

  ○ What is likely to happen to Madison's net worth as a result? (*Decrease—thumbs-down*)

- Emma's summer job pays her $200 per *week*. Her *monthly* expenses are a $250 car payment, a $100 car insurance payment, a $75 cell phone bill, and $100 for living expenses.

  ○ For one month—four weeks—is Emma's cash flow positive (thumbs-up) or negative (thumbs-down)? (*Emma's inflow is $800 per month, her outflow is $525 per month. Positive—thumbs-up*)

  ○ What is likely to happen to Emma's net worth as a result? (*Positive—thumbs-up*).

Assessment

21. Distribute a copy of *Handout 2A.4: Assessment* to each student and allow time for students to work (or assign as homework).

   ### *Handout 2A.4: Assessment—Answer Key*

   Directions: Examine Part C of Handout 2A.3. How would you help this person change his or her inflow (income) and outflow (expenses) to improve his or her financial health? Recommend ways for this person to increase his or her income or decrease expenses. How would your plan change this person's net worth over time? Write a response that includes specific suggestions and calculations.

   Answers should include specific recommendations. For example, a student might suggest that the person cancel cable service to reduce the cable/Internet/phone bill from $160 to $100 per month. They might also suggest trading the car for a less-expensive model, reducing the payment from $350 to $200 per month. These two changes would reduce monthly expenses by $210, to $2,490. In this new plan, monthly income (still $2,530) exceeds monthly expenses (now $2,490) by $40. This new plan would increase net worth over time because the excess income could be used to pay down credit card debt or added to savings.

Handout 2A.1: Classroom Station Signs (page 1 of 2)

Expenses

Income

Handout 2A.1: Classroom Station Signs (page 2 of 2)

Assets

Liabilities

Making Personal Finance Decisions

Handout 2A.2: Activity Prompts

50-inch TV $700	**Emergency cash** $600	■ **Mortgage balance** $150,000
Cable/internet $100/month	**Emergency credit card balance** $500	■ **Mortgage payment** $1,400/month
■ **Car loan balance** $5,000	**Gasoline** $75/month	**Motor scooter value** $500
■ **Car loan payment** $400/month	**Gold coins** $2,500	**Property taxes** $300/quarter
■ **Car value** $9,000	**Groceries** $200/week	**Savings** $4,000
Cell phone service $60/month	**Health club membership** $40/month	**Streaming television service** $20/month
Certificate of deposit $2,000	■ **House value** $200,000	**Stock dividends** $75/quarter
Credit card balance $1,600	**Income from side job** $250/month	**Stocks owned** $10,000
Doctor visits $60/month after insurance	**Insurance premiums** $100/month	**Unpaid IOU** $1,000
Electricity bill $60/month	**Interest on savings** $60/quarter	■ **Wages** $36,000/year after income and payroll taxes

Handout 2A.3: Net Worth and Cash Flow

Name:_____

Part A

Directions: Classify each of the following as an asset (write "A"), liability ("L"), income ("I"), or expense ("E").

_____   Electricity bill...........................$50/month

_____   Car loan balance.....................$4,000

_____   Wages ....$30,000/year (after income and payroll taxes)

_____   House value............................$175,000

_____   Doctor visits...........................$50/month (after insurance)

_____   Interest on savings $30/quarter

_____   Credit card balance................$1,500

_____   70-inch TV $1,300

_____   Property taxes........................$300/quarter

_____   Mortgage balance...................$120,000

_____   Car value $9,000

_____   Groceries $150/week

_____   Gold coins $2,500

_____   Mortgage payment.................$1,320/month

_____   Emergency cash......................$500

_____   Gasoline $60/month

_____   Stocks owned $10,500

_____   Car loan payment...................$350/month

_____   Unpaid IOU............................$1,000

_____   Savings $4,000

_____   Cable/Internet/phones.............$160/month

_____   Stock dividends.......................$60/quarter

_____   Other personal property..........$3,700

_____   Other expenses.......................$110/month

Part B

Given the information in Part A, what is this person's net worth?
Explain your answer.

Part C

Given the information in Part A, explain whether this person's net worth is likely to grow or decrease over time if things remain the same. (Hint: Convert all income and expense flows into monthly figures and compare them.)

Making Personal Finance Decisions

Handout 2A.3: Net Worth and Cash Flow—Answer Key (page 1 of 2)

Part A
Directions: Classify each of the following as an asset (write "A"), liability ("L"), income ("I"), or expense ("E").

E	Electricity bill	$50/month
L	Car loan balance	$4,000
I	Wages	$30,000/year (after income and payroll taxes)
A	House value	$175,000
E	Doctor visits	$50/month (after insurance)
I	Interest on savings	$30/quarter
L	Credit card balance	$1,500
A	70-inch TV	$1,300
E	Property taxes	$300/quarter
L	Mortgage balance	$120,000
A	Car value	$9,000
E	Groceries	$150/week
A	Gold coins	$2,500
E	Mortgage payment	$1,320/month
A	Emergency cash	$500
E	Gasoline	$60/month
A	Stocks owned	$10,500
E	Car loan payment	$350/month
L	Unpaid IOU	$1,000
A	Savings	$4,000
E	Cable/Internet/phones	$160/month
I	Stock dividends	$60/quarter
A	Other personal property	$3,700
E	Other expenses	$110/month

Handout 2A.3: Net Worth and Cash Flow—Answer Key (page 2 of 2)

Part B
Given the information in Part A, what is this person's net worth? *$80,000*
Explain your answer.

> *$80,000 = $206,500 – $126,500*
> *Net Worth   Total Assets   Total Liabilities*

Assets (All items marked with an "A")	Liabilities (All items marked with an "L")
House $175,000	Car loan balance $4,000
TV $1,300	Credit card balance $1,500
Car $9,000	Mortgage balance $120,000
Gold coins $2,500	Unpaid IOU $1,000
Cash $500	**Total $126,500**
Stocks $10,500	
Savings $4,000	
Other personal property $3,700	
Total $206,500	

Part C
Given the information in Part A, explain whether this person's net worth is likely to grow or decrease over time if things remain the same. (Hint: Convert all income and expense flows into monthly figures and compare them.)

The person's net worth is likely to decrease because he or she is spending more than he or she earns.

Monthly income (All items marked with an "I" converted into monthly terms)	Monthly expenses (All items marked with an "E" converted into monthly terms)
Wages . . . .$2,500 ($30,000/year ÷ 12 months)	Electricity bill $50
Interest . . . .$10 ($30/quarter ÷ 3 months)	Doctor visits $50
Stock dividends . . . . .$20 ($60/quarter ÷ 3 months)	Property taxes . . . .$100 ($300/quarter ÷ 3 months)
Total $2,530	Groceries . . . .$600 ($150/week × 4 weeks)
	Mortgage payment . . .$1,320
	Gasoline $60
	Car loan payment $350
	Cable/internet/phones . .$160
	Other $110
	Total $2,800

Making Personal Finance Decisions

Handout 2A.4: Assessment   Name:_____

Directions: Examine Part C of Handout 2A.3. How would you help this person change his or her inflow (income) and outflow (expenses) to improve his or her financial health? Recommend ways for this person to increase his or her income or decrease expenses. How would your plan change this person's net worth over time? Write a response that includes specific suggestions and calculations.

Standards and Benchmarks

National Standards for Financial Literacy

Standard 1: Earning Income. Income for most people is determined by the market value of their labor, paid as wages and salaries. People can increase their income and job opportunities by choosing to acquire more education, work experience, and job skills. The decision to undertake an activity that increases income or job opportunities is affected by the expected benefits and costs of such an activity. Income also is obtained from other sources such as interest, rents, capital gains, dividends, and profits.

- • **Benchmark: Grade 4**

    2. People earn an income when they are hired by an employer to work at a job.

Standard 5: Financial Investing. Financial investment is the purchase of financial assets to increase income or wealth in the future. Investors must choose among investments that have different risks and expected rates of return. Investments with higher expected rates of return tend to have greater risk. Diversification of investment among a number of choices can lower investment risk.

- • **Benchmark: Grade 8**

    1. Financial assets include a wide variety of financial instruments including bank deposits, stocks, bonds, and mutual funds. Real estate and commodities are also often viewed as financial assets.

Lesson 2B:

Meeting Financial Goals—Rate of Return

Rule 2: Have a Plan.

Financial success depends primarily on two things: (i) developing a plan to meet your established goals and (ii) tracking your progress with respect to that plan. Too often people set vague goals ("I want to be rich."), make unrealistic plans, or never bother to assess the progress toward their goals. These lessons look at important financial indicators you should understand and monitor both in setting goals and attaining them.

Lesson Description

Students are shown the two ways investments can earn a return and then calculate the annual rate of return, the real rate of return, and the expected rate of return on various assets.

Standards and Benchmarks (see page 49)

Grade Level

9-12

Concepts

Appreciation

Depreciation

Expected rate of return

Inflation

Inflation rate

Rate of return

Real rate of return

Return

Compelling Question

How is an asset's rate of return measured?

Objectives

Students will be able to

- describe two ways that an asset can earn a return and

- determine and distinguish among the rate of return on an asset, its real rate of return, and its expected rate of return.

Materials

- Visual 2B.1: Calculating the Annual Rate of Return

- Visual 2B.2: Expected Rate of Return

- Handout 2B.1: Calculating the Annual Rate of Return, one copy for each student

- Handout 2B.1: Calculating the Annual Rate of Return—Answer Key

- Handout 2B:2: Assessment, one copy for each student

- One small paper bag for each group of three to five students, with four identical items (e.g., poker chips or pieces of paper) in the bag in the following colors: one red, one white, two blue

- Paper and pen/pencil for each group of three to five students

Time required

45 minutes

Preparation

Prepare the bags as noted in the Materials section.

Procedure

1. Begin the class by asking the students to provide examples of assets. (*Answers will vary but may include houses, cars, stocks, bonds, collectibles, land, jewelry, savings account, certificates of deposit, cash, U.S. savings bonds, boats, or electronics.*)

2. Explain that assets such as those mentioned can increase your wealth in two ways: (i) The market value—or price of the asset—may increase and/or (ii) the asset can generate income. Discuss the following:

   • What are some assets that may increase in market value? (*Answers will vary but may include stocks, houses, collectibles [e.g., artwork or trading cards], or land.*)

3. Define **appreciation** as an increase in the market value of an asset. Discuss the following:

   • Can the market value of an asset go down? (*Yes*)

4. Define **depreciation** as a decrease in the market value of an asset. Explain that the market value of all of the assets mentioned could also decrease. Assets that depreciate are less desirable as investment choices. Discuss the following:

   • Which types of assets would you expect to depreciate? (*Answers will vary but may include cars, electronics, or boats.*)

5. Explain that some assets generate income. Discuss the following examples:

   • Money deposited in a savings account or used to purchase certificates of deposit or bonds earns interest.

   • Some companies pay dividends to those who own the company's stocks.

   • Houses and land can generate rental income.

6. Some assets may increase your wealth because their market value increases and because they generate income. Discuss the following examples:

   • If you own a house that you rent, the market value or price of the house may increase over time and it generates monthly income when your tenants pay rent.

   • The market value—or price—of a stock that you own may increase and the company may pay dividends on the stock.

7. Summarize by noting the following:

   • Some assets can increase your wealth only if they appreciate—that is, their market value, or price, increases. For example, the market value of collectibles (such as baseball cards or artwork) may increase.

   • Some assets can increase your wealth only by generating income. For example, interest earned on savings accounts or certificates of deposit is income.

   • Some assets can increase your wealth both ways—such as rental houses and some stocks. They increase in market value and provide income.

8.   Display *Visual 2B.1: Calculating the Annual Rate of Return*. Explain that a useful measure to compare how different assets may increase your wealth is the annual **rate of return**. Discuss the following:

- The **return** on an asset is the income the asset generates, if any, during a given period (such as a year) plus any appreciation or depreciation in the market value of the asset during that period.

- The rate of return is the return on an asset over a given period divided by the market value (the price it can be sold for in a market) of the asset at the beginning of that period. This ratio is typically multiplied by 100 and expressed as a percentage.

- For example, suppose an asset had a market value of $200 a year ago but has appreciated in value and is currently worth $205. In addition, suppose it also generated $5 in income. The return would be the $5 in income generated plus the $5 appreciation in the market value of the asset, or $10. The rate of return would be $10 divided by $200, or 0.05. Expressed as a percentage, this would be a 5 percent annual rate of return.

9.   Distribute a copy of *Handout 2B.1: Calculating the Annual Rate of Return* to each student. Allow time for students to complete the handout and then discuss their answers using Handout 2B.1—Answer Key. (Note that for items G and H, the market value of the assets depreciated. Also, item H is an example of a negative rate of return, which is possible when an asset's market value depreciates.)

10.   Ask students to reconsider case F in Handout 2B.1. Discuss the following:

- Although the rate of return was 0 percent, was there really no change in the wealth of the person who placed the cash under the mattress? (*It depends. If the prices of the goods and services this person wants to buy rise during the year, then the $1,000 would buy fewer goods and services at the end of the year than it would have at the beginning of the year, making the person less wealthy.*)

11.   Define **inflation** as a general, sustained upward movement of prices for goods and services in an economy. Explain that inflation is typically measured by the percentage increase in the average price level of goods and services over a period of time. This measurement is called the **inflation rate**. Thus, while investing can increase wealth, inflation tends to decrease wealth because the same amount of money buys fewer goods and services over time.

12.   Define the **real rate of return** on an investment as the rate of return on the investment minus the inflation rate. Explain that an asset must have a rate of return greater than the inflation rate to increase your wealth. Give the following example:

- Suppose you earn 4 percent on your savings account while the inflation rate is 3 percent. Your real rate of return would be only 1 percent: 4 percent – 3 percent = 1 percent.

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- For item F on Handout 2B.2, the real rate of return would be –3 percent if the inflation rate were 3 percent: 0 percent – 3 percent = –3 percent.

13. Discuss the following:

   - If the inflation rate were 3 percent, which of the assets in Handout 2B.2 would have a positive real rate of return? (*Only B, C, E, and G*)

   - If the inflation rate were 6 percent, which assets would have a positive real rate of return? (*Only C and E. C, with 1 percent [7 percent – 6 percent = 1 percent] and E with 4 percent [10 percent – 6 percent = 4 percent]*)

14. Explain the following:

   - The change in the price, or market value, of the asset may vary from year to year. For example, a stock's price may rise 20 percent one year, 10 percent the next, and then fall 4 percent the year after that.

   - It could also vary because the income generated by the asset changes. For example, a company may change the amount of the dividend it pays on each share of its stock, or a bank may change the interest rate that it pays on savings accounts.

15. Define the **expected rate of return** as the amount you anticipate receiving on an investment based on the probable rates of return (often based on how the asset performed in the past). Explain that people considering investing in a certain asset often consider the *expected* rate of return. Discuss the following:

   - It is important to realize that the actual rates of return for some assets can vary considerably from year to year.

   - The expected rate of return on an asset is calculated as the weighted average of all the possible actual rates of return, where each possibility is weighted by its likelihood (or probability) of happening.

   - Reassure students that although this sounds very technical, it is really quite simple, as will be demonstrated.

16. Arrange the class into small groups of three to five students. Give each group one bag (as prepared before class), each of which contains one red item, one white item, and two blue items. Tell the students to *not* look in the bags. Explain the following directions:

   - Each group should label a sheet of paper from 1 to 10.

   - Each group represents one particular asset (i.e., a stock or bond).

   - In each of 10 rounds, without looking, each group will draw an item from its bag to determine the rate of return their asset will earn for that round as follows:

     ○ Red item: 4 percent rate of return

      ○   White item: 8 percent rate of return

      ○   Blue items: 12 percent rate of return.

17. After each round, each group should record its rate of return (4 percent, 8 percent, or 12 percent) and then return the item to the bag.

18. Conduct Round 1—have each group draw an item and record its result. Repeat for the remaining 9 rounds.

19. Explain that these 10 rates represent the 10-year history of returns for each particular asset. Instruct the groups to add the 10 rates and then divide by 10 to determine their average rate of return. Ask some groups to report their average. (While the values will vary, they will all be near 9 percent. Optional: Average all of the groups' averages to get an overall class average, which would be even closer to 9 percent.)

20. Explain that around 9 percent is the expected rate of return for each of the group's assets. Note that the expected rate of return does not equal any of the actual rates of return in the given rounds. It is also closer to 12 percent than to 4 percent because there were 2 blue items in the bags and blue items represented a 12 percent rate of return. As mentioned earlier, the expected rate of return is based on the weighted average of the possibilities.

21. Display *Visual 2B.2: Expected Rate of Return*. Explain the following:

   • In this case, there were three possible rates of return: 4 percent, 8 percent, and 12 percent.

   • The chance of getting 4 percent was equal to the chance of drawing the red item, which was one in four, or 25 percent (1/4 = 0.25).

   • The chance of getting 8 percent was also 25 percent.

   • The chance of getting 12 percent was 50 percent.

   • Multiplying each possible rate of return by its chance of occurring yields a 9 percent expected rate of return. (9 percent = [4 percent × 0.25] + [8 percent × 0.25] + [12 percent × 0.50]).

Closure

22. Review the important concepts in the lesson by discussion the following:

   • What are the two ways an asset can earn a return? (*By increasing in market value or by generating income*)

- What is the real rate of return on an asset? (*The rate of return minus the inflation rate*)

- What is the expected rate of return on an asset? (*The average rate of return you would expect each period from the investment over many periods*)

Assessment

23. Distribute a copy of *Handout 2B.2: Assessment* to each student. Allow time for students to work and then review the answers.

Handout 2B.2: Assessment—Answer Key

1. An asset you bought last year for $100 has increased $10 in value and earned $2 in interest.

    a. Calculate the asset's rate of return.
    12 percent ([$12 / $100 = 0.12)

    b. The inflation rate last year was 3 percent. Calculate the asset's real rate of return.
    9 percent (12 percent – 3 percent = 9 percent)

2. Assume you are considering investing in an asset that has a 50 percent chance of producing a 10 percent profit and a 50 percent chance of producing a 5 percent loss.

    a. Calculate the asset's expected rate of return.
    The expected rate of return is 2.5 percent [(10 × 0.50) + (–5 × 0.50)].

    b. Is the asset's expected rate of return guaranteed?
    No. The expected rate of return is not guaranteed.

    c. Would you invest in this asset?
    Investment risk is determined by the comfort level of the students. Some would buy this asset, while others would not.

Visual 2B.1: Calculating the Annual Rate of Return

$$\textbf{Return} \; = \; \begin{matrix}\textbf{Income}\\\textbf{generated}\\\textbf{by an asset}\end{matrix} \; + \; \begin{matrix}\textbf{Change in the}\\\textbf{market value of the asset}\\\textbf{during a given period}\end{matrix}$$

$$\textbf{Rate of return} \; = \; \frac{\textbf{Return}}{\begin{matrix}\textbf{Market value of the asset}\\\textbf{at the beginning of the year}\end{matrix}}$$

Visual 2B.2: Expected Rate of Return

Possible outcomes (Rates of return)	Chance of happening (Probability)
4%	1 out of 4 = 0.25
8%	1 out of 4 = 0.25
12%	2 out of 4 = 0.50

**Expected rate of return =
(4% × 0.25) + (8% × 0.25) + (12% × 0.50) = 9%**

Handout 2B.1: Calculating the Annual Rate of Return

Name:_____

Return = (Income generated by asset + Change in the market value of the asset)

$$\text{Annual rate of return} = \frac{\text{Return}}{\text{Market value of the asset at the beginning of the year}}$$

Directions: Calculate the return and the annual rate of return for each of the following assets:

A.   **Asset:** 1-ounce gold bar purchased for $800 one year ago
     Current value: $816
     Return: _____
     Annual rate of return: _____

B.   **Asset:** 1-year certificate of deposit for $25,000 that pays 4% interest annually
     Return: _____
     Annual rate of return: _____

C.   **Asset:** House purchased for $120,000 one year ago that has generated net rental income of $5,400
     Current value: $123,000
     Return: _____
     Annual rate of return: _____

D.   **Asset:** $10,000 in a savings account that pays 3% interest per year
     Return: _____
     Annual rate of return: _____

E.   **Asset:** 10 shares of a stock purchased one year ago for $80 each that have paid a $3 per share dividend over the past year
     Current value: $85 per share
     Return: _____
     Annual rate of return: _____

F.   **Asset:** $1,000 in cash placed under a mattress one year ago
     Return: _____
     Annual rate of return: _____

G.   **Asset:** Bond with a face value of $20,000 purchased one year ago for $20,000 that pays 10% interest
     Current value: $18,800
     Return: _____
     Annual rate of return: _____

H.   **Asset:** Porcelain figurine purchased for $50 one year ago
     Current value: $49
     Return: _____
     Annual rate of return: _____

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Handout 2B.1: Calculating the Annual Rate of Return—Answer Key

Return = (Income generated by asset + Change in the market value of the asset)

$$\text{Annual rate of return} = \frac{\text{Return}}{\text{Market value of the asset at the beginning of the year}}$$

Directions: Calculate the return and the annual rate of return for each of the following assets:

A. **Asset:** 1-ounce gold bar purchased for $800 one year ago
    Current value: $816
    Return: *$16*
    Annual rate of return: *$16/$800 = 0.02 = 2.0%*

B. **Asset:** 1-year certificate of deposit for $25,000 that pays 4% interest annually
    Return: *$25,000 × 0.04 = $1,000*
    Annual rate of return: *$1,000/$25,000 = 0.04 = 4.0%*

C. **Asset:** House purchased for $120,000 one year ago that has generated net rental income of $5,400
    Current value: $123,000
    Return: *$5,400 + $3,000 = $8,400*
    Annual rate of return: *$8,400/$120,000 = 0.07 = 7.0%*

D. **Asset:** $10,000 in a savings account that pays 3% interest per year
    Return: *$10,000 × 0.03 = $300*
    Annual rate of return: *$300/$10,000 = 0.03 = 3.0%*

E. **Asset:** 10 shares of a stock purchased one year ago for $80 each that have paid a $3 per share dividend over the past year
    Current value: $85 per share
    Return: *($3 + $5) × 10 = $80*
    Annual rate of return: *$80/($80 × 10) = 0.10 = 10.0%*

F. **Asset:** $1,000 in cash placed under a mattress one year ago
    Return: *$0*
    Annual rate of return: *$0/$1,000 = 0.00 = 0.0%*

G. **Asset:** Bond with a face value of $20,000 purchased one year ago for $20,000 that pays 10% interest
    Current value: $18,800
    Return: *$2,000 − $1,200 = $800*
    Annual rate of return: *$800/$20,000 = 0.04 = 4.0%*

H. **Asset:** Porcelain figurine purchased for $50 one year ago
    Current value: $49
    Return: *−$1*
    Annual rate of return: *−$1/$50 = −0.02 = −2.0%*

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Handout 2B.2: Assessment   Name:_____

Name: _____

1.   An asset you bought last year for $100 has increased $10 in value and earned $2 in interest.

     a.   Calculate the asset's rate of return.

     b.   The inflation rate last year was 3 percent. Calculate the asset's real rate of return.

2.   Assume you are considering investing in an asset with a 50 percent chance of producing a 10 percent profit and a 50 percent chance of producing a 5 percent loss.

     a.   Calculate the asset's expected rate of return.

     b.   Is the asset's expected rate of return guaranteed?

     c.   Would you invest in this asset?

Standards and Benchmarks

National Standards for Financial Literacy

Standard 5: Financial Investing. Financial investment is the purchase of financial assets to increase income or wealth in the future. Investors must choose among investments that have different risks and expected rates of return. Investments with higher expected rates of return tend to have greater risk. Diversification of investment among a number of choices can lower investment risk.

- • Benchmarks: Grade 8

  1. Financial assets include a wide variety of financial instruments including bank deposits, stocks, bonds, and mutual funds. Real estate and commodities are also often viewed as financial assets.

  5. The rate of return on financial investments consists of interest payments, dividends, and capital appreciation expressed as a percentage of the amount invested.

- • Benchmark: Grade 12

  1. The real return on a financial investment is the nominal return minus the rate of inflation.

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Lesson 3A:

Investing in Yourself

Rule 3: Invest in Yourself.

The most important investment you will make in your life has nothing to do with buying a house, a share of stock, or even gold. The most important investment you can make is in yourself. You will most likely earn income by working for someone else or by running your own business. In either case, you will need education, training, skills, experience, determination, and a positive attitude on an ongoing basis to earn a good wage or make a good profit. Without first investing in yourself, your ability to earn income falls, making budgeting, saving, investing, and reaching financial goals far more difficult. These lessons look at the importance of building your human capital and explore personal attributes likely to affect the career you choose.

Lesson Description

Students perform calculations—with half the class given information to make the task easier—to demonstrate the importance of human capital in increasing a person's productivity. They then look at the wages for various occupations and consider the role of human capital in explaining the differences in those wages.

Standards and Benchmarks (see page 62)

Grade Level

9-12

Concepts

Human capital

Income

Productivity

Wages

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Compelling Question

How are knowledge and skills related to income and unemployment?

Objectives

Students will be able to

- define human capital and describe ways to increase it and

- explain the relationship among human capital, wages, and the likelihood of being unemployed.

Time Required

45 minutes

Materials

- Visual 3A.1: Wages by Occupation

- Visual 3A.2: Earnings and Unemployment by Education Level

- Handout 3A.1: Dividing by 9, one copy each for half the students in the class

- Handout 3A.2: Dividing by 9, one copy each for half the students in the class

- Handout 3A.3: Assessment, one copy for each student

- Internet access and computers for students to access the *Occupational Outlook Handbook* at http://www.bls.gov/ooh/ or provide one copy per student of several occupations from that website along with the median annual wage for all workers (To find the median annual wage for all workers, click the question mark by "Median Pay" on any occupation page.)

Procedure

1. Begin the lesson by discussing the following:

    - Why do people work? (*Answers will vary but will likely include to earn money or to buy things.*)

    - Why do people want money? (*Answers will vary but will likely include to buy things they want, to save to buy things they want in the future, or simply to survive.*)

2. Point out that people desire goods and services to satisfy their wants. Because goods and services are scarce, they have prices, making it necessary to earn income to pay

for them. **Income** is the payment people earn for providing resources in the marketplace.

3. Explain that when people work, they provide human resources—labor—and in exchange earn income in the form of **wages** (and salaries). Wages are the price producers pay to use human resources. In the United States, 70 to 75 percent of all income earned is in the form of wages.

4. Display *Visual 3A.1: Wages by Occupation*. Note the wide range of wages for different occupations. Tell the class you are going to conduct a little competition that will help explain these differences.

5. Distribute *facedown* a copy of *Handout 3A.1: Dividing by 9* (the harder version) to students in the back half of the classroom and a copy of *Handout 3A.2: Dividing by 9* (the easier version) to students in the front half of the classroom. Although these two activities are different, act as if everyone in the class is getting the exact same activity. Give the following instructions:

    •   You may not turn over the handouts until I say "go."

    •   When I say "go," turn over the handout, read the directions, and then answer as many of the questions as you can.

    •   You must work independently and may not discuss the handout or share answers.

    •   When I say "stop," immediately turn the handout facedown again.

    •   Finally, if you complete all of the problems before I say "stop," turn the activity over and stand up at your seat.

6. Say "go" to start the activity. Allow the students to work until about one-half of the students with Handout 3A.2 (those in the front of the classroom with the easier version) are standing and then say "stop." Have the class note which students are standing before asking them to sit down. (Most of the students standing will be in the front half of the class, but there may also be some students standing in the other group.) Discuss the following:

    •   Why do you think some students were able to complete the questions faster than others? (*Answers will vary but may include that the students have different math abilities or that some students might not have been motivated to work hard.*)

7. Tell the students that the two handouts were different—the students in the front half of the class were given information that made it easier for them to answer the questions. Read the directions on Handout 3A.2 (the easier version) to the class.

8. Have students exchange activities with each other for grading. (They may grade either handout—the answers are the same for both.) Tell the students to record the correct

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answers as they are announced. Announce the answers and then instruct the students to pass the handouts back to the original owners.

Handouts 3A.1 and 3A.2: Dividing by 9—Answer Key

1. Yes	6. Yes
2. No	7. Yes
3. Yes	8. No
4. No	9. No
5. No	10. Yes

9. Have the students with Handout 3A.1 report their scores and write them on the board. Repeat for the students with Handout 3A.2. Calculate an average score for each group.

    (**Teacher note:** *The expected result is that those with Handout 3A.2 will have completed more questions correctly—with typical results averaging about 5 for Handout 3A.1 and 8 for Handout 3A.2. It is also likely that more students with Handout 3A.2 stood up. Note that it is possible, however, that students* without *the extra information did as well because they either knew the extra information beforehand or were simply very good at long division. It is also possible that students* with *the extra information did not do as well because they had trouble understanding it or were not motivated to work quickly*).

10. Explain that people's ability to perform a task depends on their **human capital**. Define human capital as the knowledge and skills that people obtain through education, experience, and training. Human capital is also influenced by your natural talents, the physical and mental shape of your body and mind, and your attitude toward work. Discuss the following:

    *   What effect does your human capital have on the wage you will be paid for working? (*Answers will vary, but students should recognize that greater human capital will likely lead to higher wages.*)

11. Remind students that wages are the income earned for providing human resources (labor) in the market. Wages are determined by supply and demand. As demonstrated by the activity, those students with more human capital—the extra knowledge—were able to produce more correct calculations in the time allowed than those with less human capital. Thus, increases in people's human capital increase their **productivity**, or the amount of output that can be produced by those workers in a given amount of time.

12. Refer to the average number of correct responses for each group. Explain that if correct answers were sold for $10 each, students in the group with greater human capital would be able to generate more correct answers, and thus more revenue, for a firm that hires them.

13. Multiply the averages for each group (calculated in Step 9) by $10 to show the revenue generated. (For example, if the averages were 8 and 5 correct answers, the average revenue generated would be $80 and $50, respectively.) Explain that firms would thus be willing and able to pay more for the more productive workers. Or, in other words, the demand for these workers would be greater. Discuss the following:

   • As you acquire more human capital, are there fewer or more other people who are able to offer similar abilities and skills? Why? (*Fewer. There are fewer people with those skills and abilities because acquiring the human capital requires time, effort, and often money. Some people are willing and able to make the investment of time, effort, and money, others are not.*)

   • If there are fewer people with particular skills and abilities, what is likely to happen to the wages of those people? (*The wages of those with particular human capital are likely to be higher.*)

14. Return to Visual 3A.1. Note that being a waitress or a cashier does not require a high level of human capital, so many people have these skills. A large supply of potential workers contributes to a lower wage. Meanwhile, the human capital required to be a physician or engineer is much greater, so fewer people have these skills. A relatively small supply of potential workers contributes to a higher wage.

15. Display *Visual 3A.2: and Unemployment by Education Level*. Explain the following:

   • A principal component of human capital is education. As would be expected, higher levels of education lead to greater human capital and thus higher wages.

   • More human capital also leads to a lower likelihood of being unemployed.

   • It is important to remember, however, that a college education is only one way to increase your human capital. Skills may also be acquired through specialized vocational training (plumbing, welding, computer programming, and so on), developing and practicing a skill (art, music, sports, and so on), and/or acquiring work experience.

Closure

16. Explain the following:

   • Personal finance is about making decisions.

   • Most personal finance decisions have to do with choosing how much to save, how to budget spending, what investments to make, and what insurance to buy.

   • The starting point for all these decisions depends on how much income you are able to earn. The most important decision then is to decide how to invest in yourself by developing your human capital—you need to "learn to earn."

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Assessment

17. Distribute a copy of *Handout 3A.3: Assessment* to each student. If Internet access is not available, provide copies of occupations as noted in the Materials section. Review the directions and allow students time to complete the handout (or assign as homework).

Handout 3A.3: Assessment—Answer Key

Direction: Pick an occupation that interests you from the *Occupational Outlook Handbook* at http://www.bls.gov/ooh/ (or the handout) and review the information for that occupation. If using the website, click the question mark next to "Median Pay" to see the median annual wage for all workers. Answer the following questions:

1. Which occupation did you choose?

2. What are the education requirements for that occupation?

3. What is the annual income of the occupation?

4. Is the pay for the occupation higher or lower than the median annual wage of all workers?

5. Does the typical amount of training and education help explain why the wage is high or low?

6. Based on the pay and education requirements, would you expect people in this occupation to experience more or less unemployment?

Answers will vary based on the occupation chosen. In general, workers in occupations with higher education requirements have higher median pay and are less likely to be unemployed. And, in general, workers in occupations with lower education requirements have lower median pay and higher unemployment rates.

Visual 3A.1: Wages by Occupation (2015 Median Pay)

Occupation	Median hourly wage	Median annual income*
Physician	$90.00	$187,200
Dentist	76.11	158,310
Pharmacist	58.41	121,500
Lawyer	55.69	115,820
Mechanical engineer	40.19	83,590
Physical therapist	40.40	84,020
Computer programmer	38.24	79,530
High school teacher	35.75**	57,200
Registered nurse	32.45	67,490
Accountant/auditor	32.30	67,190
Librarian	27.35	56,880
Electrician	24.94	51,880
Plumber/pipefitter	24.34	50,620
Firefighter	22.53	46,870
Carpenter	20.24	42,090
Truck driver	19.36	40,260
Actor	18.80	37,600*
Welder	18.34	38,150
Automotive technician/mechanic	18.20	37,850
Secretary/administrative assistant	17.55	36,500
Construction laborer/helper	14.85	30,890
Bank teller	12.70	26,410
Barber/hairdresser/cosmetologist	11.40	23,710
Janitor	11.27	23,440
Food preparer	9.70	20,180
Bartender	9.39	19,530
Cashier	9.28	19,310
Waiter/waitress	9.25	19,250

NOTE:*Based on 2,000 hours (50 weeks @ 40 hours/week). **Based on 1,600 hours (40 weeks @ 40 hours/week).
SOURCE: Bureau of Labor Statistics *Occupational Outlook Handbook*; http://www.bls.gov/ooh/; www.bls.gov/ncs/ocs/sp/ncbl0831.pdf.

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Visual 3A.2: Earnings and Unemployment by Education Level

Earnings and Unemployment Rates by Educational Attainment (2015)

Median usual weekly earnings

Education Level	Earnings
Doctoral degree	$1,623
Professional degree	$1,730
Master's degree	$1,341
Bachelor's degree	$1,137
Associate degree	$798
Some college, no degree	$738
High school diploma	$678
Less than a high school diploma	$493

All workers: $860

Unemployment rate

Education Level	Unemployment rate
Doctoral degree	1.7%
Professional degree	1.5%
Master's degree	2.4%
Bachelor's degree	2.8%
Associate degree	3.8%
Some college, no degree	5.0%
High school diploma	5.4%
Less than a high school diploma	8.0%

All workers: 4.3%

NOTE: Data are for persons 25 years of age and older. Earnings are for full-time wage and salary workers.

SOURCE: Bureau of Labor Statistics Current Population Survey; http://www.bls.gov/emp/ep_chart_001.htm, accessed June 1, 2016.

Handout 3A.1: Dividing by 9   Name:_____

Directions: Determine whether or not each of the following numbers is evenly divisible by 9. If there is no remainder after dividing by 9, then the number is evenly divisible by 9. For example, 2,349/9 = 261 exactly, so there is no remainder.

Number	Evenly divisible by 9?	
1. 20,016	Yes _____	No _____
2. 52,333	Yes _____	No _____
3. 81,054	Yes _____	No _____
4. 100,232	Yes _____	No _____
5. 222,222	Yes _____	No _____
6. 693,693	Yes _____	No _____
7. 1,036,017	Yes _____	No _____
8. 4,444,444	Yes _____	No ____
9. 7,002,032	Yes _____	No _____
10. 10,555,848	Yes _____	No _____

Handout 3A.2: Dividing by 9   Name:_____

Directions: Determine whether or not each of the following numbers is evenly divisible by 9. If the sum of its digits is evenly divisible by 9, then the number is divisible by 9. For example, for the number 2,349, 2 + 3 + 4 + 9 = 18. Because 18 is evenly divisible by 9 (18/9 = 2)—there is no remainder—2,349 is divisible by 9.

Number	Evenly divisible by 9?
1. 20,016	Yes _____ No _____
2. 52,333	Yes _____ No _____
3. 81,054	Yes _____ No _____
4. 100,232	Yes _____ No _____
5. 222,222	Yes _____ No _____
6. 693,693	Yes _____ No _____
7. 1,036,017	Yes _____ No _____
8. 4,444,444	Yes _____ No _____
9. 7,002,032	Yes _____ No _____
10. 10,555,848	Yes _____ No _____

Handout 3A.3: Assessment

Name:_____

Direction: Pick an occupation that interests you from the *Occupational Outlook Handbook* at http://www.bls.gov/ooh/ (or the handout) and review the information for that occupation. If using the website, click the question mark next to "Median Pay" to see the median annual wage for all workers. Answer the following questions:

1. Which occupation did you choose?

2. What are the education requirements for that occupation?

3. What is the annual income of the occupation?

4. Is the pay for the occupation higher or lower than the median annual wage of all workers?

5. Does the typical amount of training and education help explain why the wage is high or low?

6. Based on the pay and education requirements, would you expect people in this occupation to experience more or less unemployment?

Making Personal Finance Decisions

Standards and Benchmarks

National Standards for Financial Literacy

Standard 1: Earning Income. Income for most people is determined by the market value of their labor, paid as wages and salaries. People can increase their income and job opportunities by choosing to acquire more education, work experience, and job skills. The decision to undertake an activity that increases income or job opportunities is affected by the expected benefits and costs of such an activity. Income also is obtained from other sources such as interest, rents, capital gains, dividends, and profits.

- **Grade 8 Benchmarks**

    2. People make many decisions over a lifetime about their education, jobs, and careers that affect their incomes and job opportunities.

    3. Getting more education and learning new job skills can increase a person's human capital and productivity.

    4. People with less education and fewer job skills tend to earn lower incomes than people with more education and greater job skills.

    5. Investment in education and training generally has a positive rate of return in terms of the income that people earn over a lifetime.

- **Grade 12 Benchmarks**

    5. The wage or salary paid to workers in jobs is usually determined by the labor market. Businesses are generally willing to pay more productive workers higher wages or salaries than less productive workers.

Voluntary National Content Standards in Economics

Standard 13: Income. Income for most people is determined by the market value of the productive resources they sell. What workers earn primarily depends on the market value of what they produce.

- **Grade 8 Benchmarks**

    4. More productive workers are likely to be of greater value to employers and earn higher wages than less productive workers.

    5. Peoples' incomes, in part, reflect choices they have made about education, training, skill development, and careers. People with few skills are more likely to be poor.

Lesson 3B:

Entrepreneurship—Working for Yourself

Rule 3: Invest in Yourself.

The most important investment you will make in your life has nothing to do with buying a house, a share of stock, or even gold. The most important investment you can make is in yourself. You will most likely earn income by working for someone else or by running your own business. In either case, you will need education, training, skills, experience, determination, and a positive attitude on an ongoing basis to earn a good wage or make a good profit. Without first investing in yourself, your ability to earn income falls, making budgeting, saving, investing, and reaching financial goals far more difficult. These lessons look at the importance of building your human capital and explore personal attributes likely to affect the career you choose.

Lesson Description

Students are asked to volunteer for a potentially embarrassing task (which they ultimately do not have to perform) in return for a reward, which demonstrates a characteristic of entrepreneurs. They then take a personal assessment to discover other important characteristics of entrepreneurs and determine how entrepreneurial they are based on these characteristics.

Standards and Benchmarks (see page 73)

Grade Level

9-12

Concept

Entrepreneurs

Compelling Question

What personal characteristics do entrepreneurs often have?

Objectives

Students will be able to

- define entrepreneurs and describe their role in the economy and

- describe personal characteristics entrepreneurs are likely to possess.

Time Required

45 minutes

Materials

- Visual 3B.1: Scoring Your Personal Assessment

- Visual 3B.2: Characteristics of Entrepreneurs

- Visual 3B.3: What Does Your Score Indicate?

- Handout 3B.1: My Personal Assessment, one copy for each student

- Handout 3B.2: Assessment, one copy for each student

- Container (e.g., hat or box) to hold slips of paper

- About 10 folded slips of paper (blank)

- Optional: small prizes (See Procedure Step 1)

Preparation

Place the folded slips of paper in the container.

Procedure

1. Show the container filled with slips of paper. Explain that each slip of paper describes an action that the person who draws the slip must perform in front of the class—some of the actions may be a bit embarrassing. Each volunteer who draws a slip and does what it says will receive a prize (e.g., extra credit points or a treat of some kind). In addition, they will be allowed to create a new slip with a new action to place in the hat.

2. Ask for volunteers willing to select slips to come to the front of the class. (Usually there will be some, but certainly not all students. Should no one volunteer, increase the

prize.) Once the volunteers are assembled, tell the class they won't really be playing the game—you just wanted to see who would be willing. Reward each volunteer with the prize offered without having them draw any slips. Have them remain standing in front of the class.

3. Explain that **entrepreneurs** are individuals willing to take risks to develop new products and start new business. They recognize opportunities, enjoy working for themselves, and accept challenges. Discuss the following:

    •   How were the volunteers like entrepreneurs? (*They were willing to take a risk, accept a challenge, and try something new.*)

    •   What risk did they take? (*They had no idea what was written on the slips of paper. Acting something out in front of the class could have been embarrassing.*)

    •   What was their potential reward? (*Extra credit points or whatever else was offered*)

    •   Why are entrepreneurs important to the economy? (*When entrepreneurs develop new products and start new businesses, it results in new, innovative products for consumers to buy and the production of these products provides new job opportunities for workers. These products often increase productivity and contribute to economic growth.*)

4. Point out that all of the volunteers took the risk of embarrassing themselves either because they thought the reward was worth it and/or because they were intrigued by what they might have to do or excited to create a new slip of their own. Thank the volunteers and ask them to return to their seats.

5. Distribute a copy of *Handout 3B.1: My Personal Assessment* to each student. Instruct the students to complete the assessment by circling the answers that best describe how they feel. Explain that there are no right or wrong answers. Allow time for students to complete the assessment.

6. Display *Visual 3B.1: Scoring Your Personal Assessment*. Instruct the students to score each answer based on the points on the visual. For example, a "B" answer to question 1 would score 2 points. Write the scores for each question in the short blank next to the number. They are to calculate the total and write it at the top of the page. Allow time for students to calculate their scores.

7. Display *Visual 3B.2: Characteristics of Entrepreneurs*. Instruct the students to work independently or in groups to match each characteristic on the visual with the question on the assessment that addresses that characteristic. Write the characteristic in the long blank next to the score. Allow time for students to work and then review the answers (provided below).

Making Personal Finance Decisions

1. *Competitive*	10. *Sociable*
2. *Desires achievement*	11. *Creative*
3. *Willing to work hard*	12. *Doesn't fear failure*
4. *Self-motivated*	13. *Able to plan and organize*
5. *Willing and able to lead*	14. *Willing and able to make decisions*
6. *Highly energetic*	15. *Willing and able to solve problems*
7. *Positive attitude*	16. *Willing to persevere*
8. *Willing to take risks*	17. *Self-reliant*
9. *Self-confident*	

8. Display *Visual 3B.3: What Does Your Score Indicate?* Explain that the higher the score, the more entrepreneurial traits they tend to have. Also point out that being an entrepreneur is not for everyone. People can be rewarded and satisfied as much or more by being successful managers or simply great employees.

Closure

9. Tell students that they can work for themselves or someone else. Either way they will need to develop skills and attitudes (i.e., human capital) to be successful.

Assessment

10. Distribute a copy of *Handout 3B:2: Assessment* to each student and allow time for students to work (or assign as homework).

Handout 3B:2: Assessment—Answer Key

Directions: Write a few paragraphs explaining the following:

- What is an entrepreneur, and why are entrepreneurs important to the economy?

- Are you interested in developing new products or starting a business?

- What do your assessment results suggest about whether you might enjoy being an entrepreneur?

Students should explain that entrepreneurs take risks to develop new products and start new businesses. They are important to the economy because the new products they develop and new businesses they start create new jobs—thus income—for people. Students should then reflect on their personal preference for entrepreneurship and their assessment results.

Visual 3B.1: Scoring Your Personal Assessment

1. **A.** 3 points
    B. 2 points
    C. 1 point

2. **A.** 1 point
    B. 3 points
    C. 2 points

3. **A.** 2 points
    B. 3 points
    C. 1 point

4. **A.** 2 points
    B. 1 point
    C. 3 points

5. **A.** 1 point
    B. 3 points
    C. 2 points

6. **A.** 3 points
    B. 2 points
    C. 1 point

7. **A.** 3 points
    B. 1 point
    C. 2 points

8. **A.** 3 points
    B. 2 points
    C. 1 point

9. **A.** 1 point
    B. 3 points
    C. 2 points

10. **A.** 3 points
    B. 1 point
    C. 2 points

11. **A.** 3 points
    B. 2 points
    C. 1 point

12. **A.** 1 point
    B. 3 points
    C. 2 points

13. **A.** 1 point
    B. 2 points
    C. 3 points

14. **A.** 3 points
    B. 2 points
    C. 1 point

15. **A.** 1 point
    B. 3 points
    C. 2 points

16. **A.** 2 points
    B. 1 point
    C. 3 points

17. **A.** 3 points
    B. 2 points
    C. 1 point

Making Personal Finance Decisions

Visual 3B.2: Characteristics of Entrepreneurs

Willing to take risks

Willing to work hard

Willing to persevere

Willing and able to lead

Willing and able to solve problems

Willing and able to make decisions

Able to plan and organize

Self-reliant

Self-confident

Self-motivated

Competitive

Creative

Positive attitude

Doesn't fear failure

Highly energetic

Sociable

Desires achievement

Visual 3B.3: What Does Your Score Indicate?

17-28

You would likely be most comfortable and productive in a position where you work for someone else and welcome being able to leave your work behind when you leave it each day.

29-39

If you desire to be an entrepreneur, there are some characteristics on which you will need to work; however, you would likely be very comfortable and productive as a manager or supervisor.

40-51

You have strong entrepreneurial tendencies and would likely be most comfortable pursuing your own interests or running your own business.

Handout 3B.1: My Personal Assessment* (page 1 of 2)

Name:_____

Directions: Circle the letter of the sentence that best describes you. (The blanks will be filled in later).

Total Score _____

1. _____   _____
   - **A.** I like playing and winning competitive games.
   - **B.** I like playing competitive games—win or lose.
   - **C.** I do not like playing competitive games.

2. _____   _____
   - **A.** Being rich and/or famous is not that important to me.
   - **B.** I am making plans to be rich and/or famous.
   - **C.** I would like to be rich and/or famous.

3. _____   _____
   - **A.** I will work hard if it will pay off for me right away.
   - **B.** I don't mind working hard even if the payoff is uncertain.
   - **C.** I do not like to work any harder than necessary.

4. _____   _____
   - **A.** I like accomplishing goals others have set for me.
   - **B.** I am not goal-oriented and prefer to take things as they come.
   - **C.** I like setting and accomplishing my own goals.

5. _____   _____
   - **A.** I like to follow the lead of others.
   - **B.** I like to take charge of things and can usually get others to follow.
   - **C.** I like to take charge of things but have trouble getting others to follow.

6. _____   _____
   - **A.** I have a high level of energy and enthusiasm.
   - **B.** I am usually attentive and interested in things.
   - **C.** I am often tired and bored.

7. _____   _____
   - **A.** I am optimistic about my future.
   - **B.** I am pessimistic about my future.
   - **C.** I have no strong feelings about my future.

8. _____   _____
   - **A.** I like taking risks when there is a chance of big rewards.
   - **B.** I like to weigh the risk of things against the potential rewards.
   - **C.** I like sure things even though the rewards may be small.

Handout 3B.1: My Personal Assessment* (page 2 of 2)

9. _____   _____
   - **A.** I feel somewhat powerless over my life.
   - **B.** I feel confident and in charge of my life.
   - **C.** I feel I can manage my life with some help from others.

10. _____   _____
   - **A.** I like and can get along with most people.
   - **B.** I feel people are often hard to get along with.
   - **C.** I like my friends but do not like meeting new people.

11. _____   _____
   - **A.** I like creating new things and ideas.
   - **B.** I sometimes like adapting and modifying old things to make them better.
   - **C.** I usually like leaving things pretty much as they are—"if it ain't broke, don't fix it."

12. _____   _____
   - **A.** I try to avoid making mistakes because of what others might think.
   - **B.** I am not afraid of making mistakes because I often learn a lot from them.
   - **C.** I prefer not to make mistakes because it sets me back.

13. _____   _____
   - **A.** I like to let things happen and then adjust accordingly.
   - **B.** I like when there is a plan, but I don't like doing the planning.
   - **C.** I like making a plan, following it, and adjusting it as is necessary.

14. _____   _____
   - **A.** I like to make decisions and am willing to accept the consequences.
   - **B.** I like time to make decisions so I can get other people's opinions.
   - **C.** I would rather have others make decisions and not be responsible.

15. _____   _____
   - **A.** I only like solving problems that have simple answers.
   - **B.** I see problems as opportunities for coming up with creative solutions.
   - **C.** I like solving problems using methods I have learned in the past.

16. _____   _____
   - **A.** I usually finish things I start.
   - **B.** I tend to give up on things that aren't working or become too difficult.
   - **C.** I will never give up accomplishing something that is important to me.

17. _____   _____
   - **A.** I have the skills and talent to do many things well.
   - **B.** I have the skills and talent to do some things.
   - **C.** I tend to rely on others to do a lot of things for me.

*Based on "Entrepreneurial Potential Self-Assessment" from the Business Development Bank of Canada; https://www.bdc.ca/en/articles-tools/entrepreneur-toolkit/business-assessments/pages/self-assessment-test-your-entrepreneurial-potential.aspx?page=1.

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Handout 3B.2: Assessment   Name:_____

Directions: Write a few paragraphs explaining the following:

- What is an entrepreneur, and why are entrepreneurs important to the economy?

- Are you interested in developing new products or starting a business?

- What do your assessment results suggest about whether you might enjoy being an entrepreneur?

Standards and Benchmarks

Voluntary National Content Standards in Economics

Standard 14: Entrepreneurship. Entrepreneurs take on the calculated risk of starting new businesses, either by embarking on new ventures similar to existing ones or by introducing new innovations. Entrepreneurial innovation is an important source of economic growth.

- • **Benchmark: Grade 8**
    2. Entrepreneurs organize resources to produce goods and services because they expect to earn profits.

- • **Benchmark: Grade 12**
    3. Productivity and efficiency gains that result from innovative practices of entrepreneurs foster long-term economic growth.

National Standards for Financial Literacy

Standard 1: Earning Income. Income for most people is determined by the market value of their labor, paid as wages and salaries. People can increase their income and job opportunities by choosing to acquire more education, work experience, and job skills. The decision to undertake an activity that increases income or job opportunities is affected by the expected benefits and costs of such an activity. Income also is obtained from other sources such as interest, rents, capital gains, dividends, and profits.

- • **Benchmark: Grade 8**
    8. Entrepreneurs take the risk of starting a business because they expect to earn profits as their reward, despite the fact that many new businesses can and do fail. Some entrepreneurs gain satisfaction from working for themselves.

Lesson 4A:

What Are Taxes For?

Rule 4: Contribute your share.

The difference between gross income and net income is the money that must be paid in taxes to various levels of government. People have a say in how taxes are collected and spent primarily through the people they elect to run the government. These lessons look at what the government does with tax revenue—spends it on goods and services—and how taxes are structured and collected.

Lesson Description

Students participate in an activity that demonstrates the difference between private and public goods to show why it is necessary for the government to provide some goods and services. They also participate in an activity to understand why the government redistributes some tax revenue as income to others.

Standards and Benchmarks (see page 84)

Grade Level

9-12

Concepts

Income distribution

Nonexcludability

Nonrivalry

Private goods

Public goods

Transfer payments

Compelling Question

Why does the government provide public goods and transfer payments?

Objectives

Students will be able to

- describe the characteristics of a public good or service and provide examples,

- explain why public goods are often provided by the government,

- explain why the government may wish to redistribute income, and

- explain that the government uses tax revenue to buy goods and services.

Time Required

45 minutes

Materials

- Visual 4A.1: Two Boxes

- Handout 4A:1: Assessment, one copy for each student

- Classroom $10 bills, two for each student

- One piece of blank paper for each student

Procedure

1. Display *Visual 4A.1: Two Boxes* and instruct the students to draw two similar boxes on a sheet of paper and label them "1" and "2." Explain the following:

   - Imagine you each have 10 tokens that can be placed into these boxes and turned into treats. You get to decide how many of your 10 tokens you wish to place in each box.

   - For each token you place in Box 1, you will receive 1 treat. So, if you place 7 of your 10 tokens in Box 1, you will receive 7 treats.

   - The number of treats you will receive from Box 2 will depend on the total number of tokens placed in Box 2 by the entire class. For every _____ tokens (this number should be *half* the class size, rounded to the next whole number if there is an odd number) placed in Box 2 by the class, each student in the class will receive one treat—regardless of whether you placed any tokens in Box 2. For example, if the class has 24 students, then for every 12 tokens placed in Box 2, each student would receive 1 treat. If the sum of the tokens placed in Box 2 were 64, then each student would receive 5 treats (64/12 = 5.33, so 5 treats).

2. To clarify student understanding, discuss the following:

    •   How many treats will you receive if you put all of your tokens in Box 1? (*10*)

    •   How many treats will each of you receive if all of you put all of your tokens in Box 2? (*Total students× 10)/Half the class size = Treats per student. For example, for a class of 24, the number of treats would be the following: [24 × 10]/12 = 20, or 240/12 = 20.*)

3. Explain that Box 2 potentially pays off twice as well as Box 1—20 treats versus 10 treats. Discuss the following:

    •   Is everyone placing all of his or her tokens in Box 2 the best choice for everyone in the class? (*Answers will vary.*)

    •   Point out that if a student places all of her or his tokens in Box 1 while the rest of the class places all their tokens in Box 2, the student would get 10 treats from Box 1 plus likely more than 10 treats from Box 2. For one student in a class of 24, this scenario would be calculated as follows:

        Box 1 = 10 Tokens

        Box 2 = 230/12 = 19.167 (so, 19 tokens)

        10 + 19 = 29 Tokens

4. Instruct the students to write how many of their 10 tokens they wish to allocate to each box—not allowing anyone to see their choices. Tell them to write their name at the top of the paper and then fold the paper in half and turn it in.

5. Go through the papers and total the number of tokens allocated to Box 2, and then calculate the number of treats Box 2 provides per student and announce it to the class:

    _____ ÷ _____ = _____

          Total tokens in Box 2   Half the class size   Total treats per student

6. Determine the total number of treats for each student by adding the number of treats received from Box 2 to the number of treats received from Box 1. (Students who put most of their tokens in Box 1 will end up with the most treats. However, because many [likely] chose to put their tokens in Box 1, the total number of treats each student receives is usually less than what they could have been earned had everybody put their tokens in Box 2.)

7. Calculate the total treats earned by the class based on their allocations as follows: Determine the number of treats generated from Box 2 (The answer in Step 5 times the number of students in the class). Add this to the total number of tokens allocated to Box 1. To easily calculate the Box 1 total, determine the total number of tokens in

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the class (10 times the number of students in the class) and subtract the total number of tokens placed in Box 2 (which you determined in Step 5).

8. Compare the total treats generated by everyone in the class with what could have been generated (already determined in Step 2) had everyone put all their tokens in Box 2. (The number is generally less, sometimes significantly less.)

9. Explain that the class did not do a very good job of turning tokens into treats. They could have had more treats had everyone placed their tokens in Box 2. If they think of the tokens as "dollars" and the treats as "goods and services," then what just happened was not a very good deal—they could have gotten a lot more for their money.

10. Explain that the two boxes represent two different types of goods as follows:

    • Box 1 represents **private goods**, while Box 2 represents **public goods**.

    • A public good has two characteristics that make it different from a private good:

       i. **nonrivalry**, which means one person's benefit from a good or service doesn't reduce the benefit available to others from that good or service, and

       ii. **nonexcludability**, which means it isn't possible to keep those who don't pay for a good or service (free riders) from obtaining the benefits from that good or service.

11. Provide examples of public goods, emphasizing the two characteristics above. Examples include national defense; public television; over-the-air radio/television broadcasts; natural environments (rainforests, parks, wildlife habitats, and wilderness areas); a fireworks display; the services of lighthouses and highways; mosquito control; and street lighting. (For example, if someone decides to spray mosquito nesting areas to reduce mosquitoes in an area, no one in that area can be excluded from receiving the benefits—even if they did not help pay for the service.)

12. Explain the following:

    • People often assume that other people will buy public goods so that they can spend their own money on private goods and end up with both public and private goods.

    • For example, a person may watch public television and enjoy the programs but never pledge money to support public television. Others do contribute. As a result, the non-supporter—the free rider—is able to benefit from the public television programming and spend what he or she might have contributed on other goods and services.

- As the classroom activity demonstrated, we all have the same tendency. Because those who might provide public goods can't exclude those who don't pay for using them, few people are willing to provide public goods or services themselves.

- The government typically provides public goods that are nonrival and nonexcludable along with selected other goods and services that society wants. The government pays for these goods and services by collecting taxes.

- The government also makes **transfer payments**, which are payments made by the government to people who do not supply goods or services or labor in exchange for those payments.

13. Distribute two classroom $10 bills to each student. Tell the students they are going to participate in an activity that will help them understand why the government transfers funds to other groups of people in society. Explain the following:

   - Each of you is going to choose two pizzas to buy—pepperoni and/or vegetarian.

   - The pizzas are $10 each.

   - You may buy either kind with your $20, but can afford only two pizzas each.

14. Ask each student what they would like to order and tally the orders by the two pizza types, noting the students' names with their orders. Each student may order two pepperoni pizzas, two vegetarian pizzas, or one of each. Collect the money—$20 per student.

15. Report the results: _____ pepperoni; _____ vegetarian. (The sum should be equal to the number of $10 bills distributed.)

16. Redistribute the $10 bills. Give the students who chose the least-ordered pizza (likely vegetarian) four to six bills and give the remaining students none or one $10 bill.

17. Again, ask each student how many of each kind of pizza they would like to buy, record a tally on the board, and collect the money. (Students with more dollars will be able to buy more pizzas—that is, a student with six $10 bills can buy six pizzas in any combination, while a student with no bills can't buy any pizzas.)

18. Report the results: _____ pepperoni; _____ vegetarian. (Given that the vegetarian lovers had more money, more vegetarian pizzas will likely be ordered, although the total sum of pizzas should still be the same—equal to the number of $10 bills.) Discuss the following:

   - How did the mix of pizzas change between pepperoni and vegetarian? (*Most will say something about how those with the most money got more of what they wanted.*)

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- How do you feel about this change? (*Some might comment that the second distribution wasn't "fair" because some students got more money than others.*)

19. Explain that the activity shows how **income distribution**—the way income is distributed among individuals in a society—affects the mix of goods and services produced and consumed in an economy. Essentially, each dollar of income or wealth a person spends is like one vote on what gets produced and consumed. Discuss the following:

   - Is this type of "voting" fair? (*Answers will vary. Some students will say "yes" because they believe those with more income or wealth earned it by working hard or making good choices. Other students will say "no" because they believe not everyone has the same opportunities to earn income or that each person's desires should count equally.*)

20. Remind students that a person's income or wealth is based on the quality and quantity of resources they have to sell—most notably their human resources (labor). Explain the following:

   - For a variety of reasons, some people are not able to earn an income by using their human resources: They may be too young or old to work, disabled and unable to work, or willing and able to work but unemployed because they cannot find a job with the skills they have.

   - In each case, these people likely earn little to no income. As demonstrated in the pizza activity, they might be able to purchase only a few goods and services or possibly none at all.

   - The government often taxes those with more income and redistributes the money through transfer payments to those who have very little or no income.

   - Transfer programs include welfare programs for the poor, unemployment benefits for the unemployed, and Social Security benefits for the disabled and elderly.

Closure

21. Explain that the lesson has focused on two reasons the government collects taxes: (i) to provide public goods and (ii) to redistribute income to the disadvantaged to purchase private goods and services. In both cases, taxes end up being used to buy goods and services.

Assessment

22. Distribute a copy of *Handout 4A.1: Assessment* to each student and allow time for students to work (or assign as homework).

Handout 4A.1: Assessment—Answer Key

Directions: Write at least one paragraph for each numbered item.
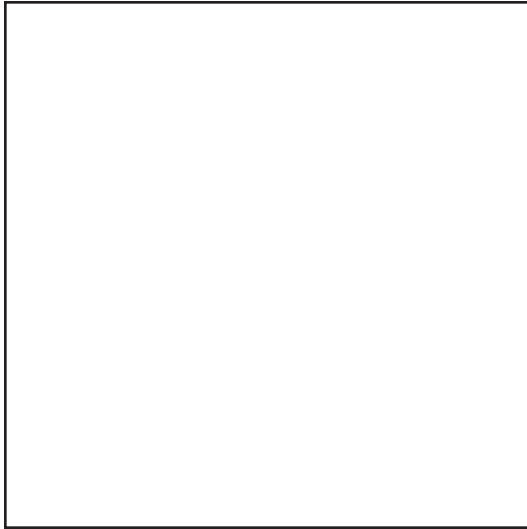
1. The government collects taxes to pay for public goods.

    *   Summarize the characteristics of a public good. (*Public goods are nonexcludable and nonrival.*)

    *   Explain how the government pays for public goods. (*The government collects taxes to pay for them.*)

    *   Explain why the government is better suited to provide national defense than open a chain of fast-food restaurants. (*National defense is a public good. It is both nonexcludable and nonrival. As such, private firms will not produce national defense because they will not be able to earn a profit. Rather, private firms are well suited to produce private goods such as fast food, which is both excludable and rival.*)

2. The government also collects taxes to redistribute income.

    *   Explain how the dollars spent by consumers act as votes for what producers decide to produce. (*Producers produce what consumers want to buy because they want to earn a profit. So spending on a specific good or service provides an incentive for producers to produce that good or service.*)

    *   How do transfer payments change what gets produced? (*Transfer payments change the demand for what gets produced by reducing the "votes" of those with high incomes and wealth and increasing the votes of those with smaller incomes and wealth.*)

    *   Explain how some people see transfer payments as making society fairer, while others see this redistribution as unfair. (*Some see income redistribution as a way to provide for those with little income and address income inequality in society. It gives those with little or no income a higher standard of living and more opportunity than they would have had otherwise. Some see redistribution as unfair because it takes income from people who worked to earn it and gives it to people who did not work to earn it.*)
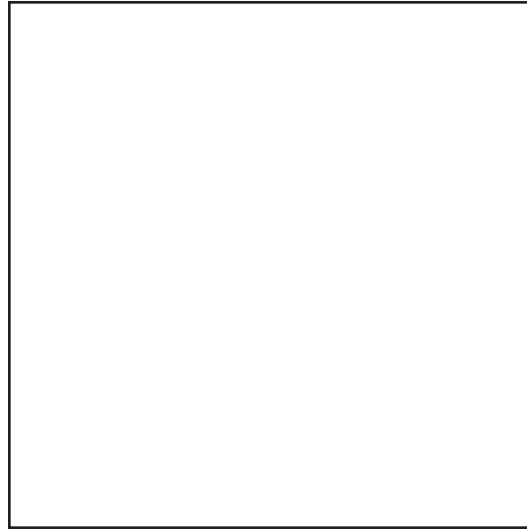

Making Personal Finance Decisions

Visual 4A.1: Two Boxes

1   **2**

For each token you place in Box 1, you will receive **1 treat**.

For every _____ tokens placed in Box 2 by the class, each student in the class will receive **1 treat**.

Handout 4A:1: Assessment   Name:_____

Directions: Write at least one paragraph for each numbered item.

1.   The government collects taxes to pay for public goods.

    •   Summarize the characteristics of a public good.

    •   Explain how the government pays for public goods.

    •   Explain why government is better suited to provide national defense than open
         a chain of fast-food restaurants.

2.   The government also collects taxes to redistribute income.

    •   Explain how the dollars spent by consumers act as votes for what producers
         decide to produce.

    •   How do transfer payments change what gets produced?

    •   Explain how some people see transfer payments as making society fairer, while
         others see this redistribution as unfair.

Standards and Benchmarks

Voluntary National Content Standards in Economics

Standard 16: Role of Government and Market Failure. There is an economic role for government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also have direct or indirect effects on people's incomes.

- Benchmarks: Grade 8

    1. Public goods and services provide benefits to more than one person at a time, and their use cannot be restricted to only those people who have paid to use them.

    2. If a good or service cannot be withheld from those who do not pay for it, producers expect to be unable to sell it and, therefore, will not produce it. Governments provide some of these goods and services.

- Benchmark: Grade 12

    9. Governments often redistribute income directly when individuals or interest groups are not satisfied with the income distribution resulting from markets; governments also redistribute income indirectly as side-effects of other government actions that affect prices or output levels for various goods and services.

National Standards for Financial Literacy

Standard 1: Earning Income. Income for most people is determined by the market value of their labor, paid as wages and salaries. People can increase their income and job opportunities by choosing to acquire more education, work experience, and job skills. The decision to undertake an activity that increases income or job opportunities is affected by the expected benefits and costs of such an activity. Income also is obtained from other sources such as interest, rents, capital gains, dividends, and profits.

- Benchmarks: Grade 12

    5. The wage or salary paid to workers in jobs is usually determined by the labor market. Businesses are generally willing to pay more productive workers higher wages or salaries than less productive workers.

    7. Taxes are paid to federal, state, and local governments to fund government goods and services and transfer payments from government to individuals. The major types of taxes are income taxes, payroll (Social Security) taxes, property taxes, and sales taxes.

Lesson 4B:

Understanding Taxes

Rule 4: Contribute your share.

The difference between gross income and net income is the money that must be paid in taxes to various levels of government. People have a say in how taxes are collected and spent primarily through the people they elect to run the government. These lessons look at what the government does with tax revenue—spends it on goods and services—and how taxes are structured and collected.

Lesson Description

Students discuss factors that make various taxes different: bases, rates, structures, methods of collection, and the level of government imposing the tax. They learn a simple tax formula and information about four common types of taxes (income, payroll, sales, and property). Students apply this knowledge to calculate for three households the total taxes paid and net income based on gross income and expenditures.

Standards and Benchmarks (see page 99)

Grade Level

9-12

Concepts

Gross income

Net income (disposable income)

Tax base

Tax rate

Tax structures (progressive, proportional, and regressive)

Types of taxes (income, payroll, sales, and property)

Making Personal Finance Decisions

Compelling Question

How do various types of taxes affect people differently?

Objectives

Students will be able to

- define and use a simple tax formula (tax base × tax rate) to determine the amount of taxes paid;

- explain and recognize tax structures;

- describe the most common types of taxes—income, payroll, sales, and property; and

- calculate a household's total taxes and net income based on that household's gross income and expenditures.

Materials

- Visuals 4.B1: Tax Structures

- Visual 4.B2: Characteristics of Common Taxes (Optional: One copy of Visual 4B.2 for each student)

- Handout 4B.1: Calculating Taxes and Net Income, one copy for each student and one copy for the teacher to use as a visual

- Handout 4B.1 Calculating Taxes and Net Income—Part B Answer Key

- Handout 4B.2 Assessment, one copy for each student

- Handout 4B.2 Assessment—Answer Key

Time Required

45 minutes

Procedure

1. Begin the class by discussing the following:

   - What taxes do people, including yourself, have to pay? (*Answers will vary, but students will likely note sales taxes or many other taxes such as income taxes, excise taxes, tariffs, property taxes, or payroll taxes.*)

   - Are all these taxes the same? (*No*)

   - What makes them different from each other? (*Answers will vary but will likely focus on the tax rate, what the tax is collected for, or how and when the taxes are paid.*)

2. Explain that this lesson will look at the most common taxes people pay and how these taxes differ. For most taxes, the dollar amount paid is determined by multiplying the **tax base** by a **tax rate**.

3. Display *Visual 4B.1: Tax Structures* and refer to the equation at the top. Explain the following:

    •   Capital B is the tax base—typically, the dollar value of something such as income, property, or an amount spent for a good or service.

    •   Lowercase t is the tax rate—usually expressed as a percentage or decimal, for example, 6 percent or 0.06.

    •   Capital T is the amount of taxes paid. For example, if the tax base is $10,000 and the tax rate is 5 percent (or 0.05), the taxes paid would be $500 ($10,000 × 0.05). Note that when writing the formula, the decimal expression of the tax rate is used.

    •   Taxes paid may differ based on the tax base and the tax rate.

    •   The **tax structure** describes how the tax rate changes as the size of the tax base changes.

4. Refer to the three tax structures on Visual 4B.1: progressive, proportional (flat), and regressive. Explain each as follows:

    Progressive Tax

    •   With a progressive tax, the tax rate increases as the base increases—People with higher base amounts pay a larger percentage of the base in taxes than those with lower base amounts.

    Proportional (Flat) Tax

    •   With a proportional tax, the tax rate stays the same for all tax base amounts.

    •   A proportional tax is also called a flat tax—everyone pays the same tax rate regardless of the amount of the tax base.

    Regressive Tax

    •   With a regressive tax, the tax rate decreases as the tax base increases. That is, people with higher base amounts pay a lower percentage of the base in taxes than those with lower base amounts.

    •   With a regressive tax, although those with higher bases pay a lower tax rate, they still pay more taxes in terms of dollars.

    •   The structure of the tax does not depend on the amount of taxes paid *in dollars* but on how the tax rate changes as the size of the tax base changes. (In each example on *Visual 4B.2: Characteristics of Common Taxes*, those with the higher tax base pay more taxes *in terms of dollars*).

Making Personal Finance Decisions

5. Display Visual 4B.2. (Option: Distribute a copy of Visual 4B.2 to each student.) Explain that the chart summarizes characteristics of four common taxes people pay with respect to the tax base, the tax structure (described in Step 4), how the tax is collected, and which level of government imposes the tax. Discuss each as follows:

    ### Income Tax

    - The tax base for income tax is the income, or money, people earn from any source.

    - Most people earn income by working (providing their human resources in the marketplace), which is called wage or salary income. People can also earn income in the form of interest on their savings, dividends from their stocks, rents on property owned, royalties on copyrighted material, profits from a small business, and other ways.

    - Federal incomes taxes have a progressive rate structure, as do most state income taxes.

    ### Payroll Tax

    - The tax base for payroll taxes is *only* wage and salary income—*not* all income. For example, income earned from interest is not subject to payroll taxes.

    - Typically, both the wage earner—the employee—and his or her employer pay payroll taxes on the wages earned (and usually the tax rate paid by both is the same, although it doesn't have to be). For example, if a wage earner earned $400 during a pay period and the payroll tax was 6 percent, $24 ($400 × 0.06) would be deducted for payroll taxes from the employee's check, and the employer would also have to pay $24. The government would thus receive $48 in payroll taxes (which is 12 percent of the employee's wages).

    - Payroll taxes may be capped at a certain income level. Beyond that cap, neither the wage earner nor the employer pays any additional payroll taxes. For example, in 2016, the income cap on the Social Security portion of payroll taxes was $118,500. So, this tax would be proportional below $118,500 but regressive at wage levels above $118,500 (the tax rate would fall as wages earned exceeded the cap). For example, a person with wages of $237,000, which is twice the cap, would be paying half the stated payroll tax rate since only half of that person's income would be subject to the tax.

    - In 2016, the Medicare portion of payroll taxes was uncapped and had a tax rate of 1.45 percent, making it a proportional tax.

    ### Sales Tax

    - The tax base for sales taxes is the purchase amount of the good and service.

    - Sales tax is usually a fixed percentage. It is a proportional tax based on the purchase amount.

    - Relative to income, however, sales taxes tend to be regressive because people with lower incomes spend a larger percentage of their incomes on goods and services.

Making Personal Finance Decisions

- For example, consider a 5 percent sales tax. A household with a $25,000 income might spend 80 percent of that income ($20,000) on goods and services and thus pay $1,000 ($20,000 × 0.05) in sales tax. In contrast, a household with a $100,000 income might spend 60 percent of that income ($60,000) on goods and services and pay $3,000 ($60,000 × 0.05) in sales tax. Relative to their incomes, the lower-income household would be paying 4 percent of its income ($1,000/$25,000) in sales taxes, while the higher-income household would be paying only 3 percent ($3,000/$100,000).

- Many states recognize that sales taxes are regressive and thus exclude some items (those most often purchased by lower-income households, such as food and clothing) from sales tax to make the tax less regressive.

- The federal government also collects taxes on the purchase of certain items, such as cigarettes, tires, and gasoline. Such sales taxes on specific items are called excise taxes and have different tax rates for different items.

Property Tax

- The base for a property tax (also called a real estate or personal property tax) is typically the assessed value of the land and house a household owns.

- The assessed value is often based on the "market value," which is the estimated price that the property would sell for. Property taxes are usually proportional.

6. Distribute a copy of *Handout 4B.1: Calculating Taxes and Net Income* to each student. Give the following example to show how to use the income tax table on the handout to calculate taxes owed:

- Suppose a household has an income of $76,000.

- This amount is "over $40,000 but not over $100,000," so the tax should be calculated using line 3 of the table.

- The income tax owed would be $7,000 plus 25 percent of the amount over $40,000.

- The amount over $40,000 is $36,000 ($76,000 − $40,000 = $36,000).

- $36,000 × 0.25 = $9,000.

- The total tax owed is $16,000 ($7,000 + $9,000).

7. Arrange students in small groups and instruct them to complete Part A of Handout 4B.1. Allow time for students to complete the activity and then review their answers.

Making Personal Finance Decisions

Handout 4B.1—Part A Answer Key

a. *Proportional and progressive: The income tax is proportional up to $10,000 and then progressive for all remaining income levels.*

b. *Proportional and regressive: The payroll tax is proportional for wage/salary income up to $100,000 and then regressive for wage/salary above $100,000.*

c. *Regressive: The payroll tax is regressive if the household has any non-wage income (e.g., interest and dividends).*

d. *Proportional*

e. *Regressive: The sales tax is regressive relative to income, assuming lower-income households spend a larger portion of their income on goods and services.*

f. *Proportional*

8. Explain the following:

   - **Gross income** is the amount people earn before any deductions or taxes are paid.

   - **Net (or disposable) income** is all income received (gross income) minus taxes.

   - Households can basically do two things with their net income: spend it on goods and services (including contributions to others to purchase goods and services) or save it.

   - A household's gross income is the sum of the taxes it pays, the amount it spends, and the amount it saves.

9. Choose one of the following options for students to complete Part B of Handout 4B.1:

   - Have students work in groups of three, with one student assigned to each household and students assisting each other as necessary. Allow time for students to work and then display Handout 4B.1—Part B Answer Key and review the answers.

   - Assign Handout 4B.1 as homework. Discuss the answers the next day in class using Handout 4B.1—Part B Answer Key.

Closure

10. Explain the following:

    - The government imposes many different types of taxes.

    - It is important to understand different tax types because they determine the net income you have available to spend and/or save.

    - Because of taxes, your net income will generally be less than the income you receive from working and other sources.

- • The various levels of government set taxes, including what is taxed, and the tax base, and tax rates. As such, the government determines the tax structure.

- • Households choose the taxes they pay primarily through the people they elect to run the government.

Assessment

11. Distribute a copy of *Handout 4B.2: Assessment* to each student. Review the directions and allow time for students to work (or assign as homework). Review the answers with *Handout 4B.2—Answer Key*.

Visual 4B.1: Tax Structures

B × t = T
(Tax <u>B</u>ase × Tax Ra<u>t</u>e = <u>T</u>axes Paid)

Progressive taxes
The tax rate increases as the tax base increases.

Tax base	Tax rate	Taxes paid
$ 20,000	10% (0.10)	$ 2,000
$ 60,000	20% (0.20)	$12,000
$250,000	30% (0.30)	$75,000

Proportional (flat) taxes
The tax rate stays the same for all amounts of the tax base.

Tax base	Tax rate	Taxes paid
$ 20,000	10% (0.10)	$ 2,000
$ 60,000	10% (0.10)	$ 6,000
$250,000	10% (0.10)	$25,000

Regressive taxes
The tax rate decreases as the tax base increases.

Tax base	Tax rate	Taxes paid
$ 20,000	10% (0.10)	$2,000
$ 60,000	8% (0.08)	$4,800
$250,000	5% (0.05)	$7,500

Making Personal Finance Decisions

Visual 4B.2: Characteristics of Common Taxes

Tax	Base	Rate structure	How collected	Government level(s)
Income tax	All income	Progressive	Withheld over the year; file tax form once a year	Federal, most states, some local
Payroll tax	Wage/salary income	Social Security: regressive due to income cap; Medicare: proportional	Withheld from each paycheck	Federal
Sales tax	Value of goods and services purchased	Proportional based on purchase price; regressive relative to income	Paid at time of purchase	Most states, some local
Property tax	Property value (house/land)	Proportional based on property value	Paid in one or two payments per year or as part of the owner's mortgage payment	Mostly local

Making Personal Finance Decisions

Handout 4B.1: Calculating Taxes and Net Income (page 1 of 2)

Name:_____

Part A
Suppose the following describes the various taxes in an economy:

Income Tax

If income is over…	but not over…	the income tax owed is…	of the amount over…
$ 0	$ 10,000	10%	$ 0
$ 10,000	$ 40,000	$1,000 + 20%	$ 10,000
$ 40,000	$100,000	$7,000 + 25%	$ 40,000
$100,000	$300,000	$22,000 + 30%	$100,000
$300,000	…	$82,000 + 40%	$300,000

Payroll Tax: 6% of wage/salary income earned up to $100,000 (wage/salary income earned in excess of $100,000 is taxed at 0%)

Sales Tax: 5% on all goods and services purchased

Property Tax: 1% of the assessed value of the land and house

Directions: Based on the tax rates noted above, determine whether the tax structure of each tax noted below is progressive, proportional, regressive, or a combination of two tax structures.

a. _____ The income tax based on all income

b. _____ The payroll tax based on wage or salary income

c. _____ The payroll tax based on all income

d. _____ Sales tax based on purchases of goods and services

e. _____ Sales tax relative to all income

f. _____ The property tax based on property values

Handout 4B.1: Calculating Taxes and Net Income (page 2 of 2)

Part B
Directions: For each of the following households, calculate each tax owed based on the rates in Part A, the total taxes owed, net income, and savings.

Hultstrom Household
Wage and salary income: $20,000
Other income: $0
Purchases of goods and services: $15,000
Value of land and house: $0 (They rent.)

Income tax: _____

Payroll tax: _____

Sales tax: _____

Property tax: _____

Total taxes: _____

Net income: _____

Savings: _____

Rodriguez Household
Wage and salary income: $60,000
Other income: $0
Purchases of goods and services: $36,000
Value of land and house: $100,000

Income tax: _____

Payroll tax: _____

Sales tax: _____

Property tax: _____

Total taxes: _____

Net income: _____

Savings: _____

Jones Household
Wage and salary income: $200,000
Other income: $50,000 (interest and dividend income)
Purchases of goods and services: $140,000
Value of land and house: $1,000,000

Income tax: _____

Payroll tax: _____

Sales tax: _____

Property tax: _____

Total taxes: _____

Net income: _____

Savings: _____

Making Personal Finance Decisions

Handout 4B.1: Calculating Taxes and Net Income—Part B Answer Key

Part B
Directions: For each of the following households, calculate each tax owed based on the rates in Part A, the total taxes owed, net income, and savings.

Hultstrom Household
Wage and salary income: $20,000
Other income: $0
Purchases of goods and services: $15,000
Value of land and house: $0 (They rent.)

Income tax: *$1,000 + ($10,000 × 0.20) = $3,000*

Payroll tax: *$20,000 × 0.06 = $1,200*

Sales tax: *$15,000 × 0.05 = $750*

Property tax: *$0 × 0.01 = $0*

Total taxes: *$3,000 + $1,200 + $750 + $0 = $4,950*

Net income: *$20,000 − $4,950 = $15,050*

Savings: *$15,050 − $15,000 = $50*

Rodriguez Household
Wage and salary income: $60,000
Other income: $0
Purchases of goods and services: $36,000
Value of land and house: $100,000

Income tax: *$7,000 + ($20,000 × 0.25) = $12,000*

Payroll tax: *$60,000 × 0.06 = $3,600*

Sales tax: *$36,000 × 0.05 = $1,800*

Property tax: *$100,000 × 0.01 = $1,000*

Total taxes: *$12,000 + $3,600 + $1,800 + $1,000 = $18,400*

Net income: *$60,000 − $18,400 = $41,600*

Savings: *$41,600 − $36,000 = $5,600*

Jones Household
Wage and salary income: $200,000
Other income: $50,000 (interest and dividend income)
Purchases of goods and services: $140,000
Value of land and house: $1,000,000

Income tax: *$22,000 + ($150,000 × 0.30) = $67,000*

Payroll tax: *$100,000 × 0.06 = $6,000*

Sales tax: *$140,000 × 0.05 = $7,000*

Property tax: *$1,000,000 × 0.01 = $10,000*

Total taxes: *$67,000 + $6,000 + $7,000 + $10,000 = $90,000*

Net income: *$250,000 − $90,000 = $160,000*

Savings: *$160,000 − $140,000 = $20,000*

Making Personal Finance Decisions

Handout 4B.2: Assessment   Name:_____

Directions: Use the information on Handout 4B.1 to calculate for each taxpayer the taxes paid, total tax rates, and net income.

Taxpayer A has a gross income of $200,000 and spends 50 percent of her income on goods and services taxable under the sales tax.

Taxpayer B has a gross income of $40,000 and spends 70 percent of his income on goods and services taxable under the sales tax.

Taxes	Taxpayer A		Taxpayer B	
	$ Paid	**% Paid**	**$ Paid**	**% Paid**
Income tax				
Payroll tax				
Sales tax				
Total taxes*				
Net income				
*Includes income, payroll, and sales taxes.				

Write a paragraph that addresses the following:

- Describe each type of tax and use Taxpayers A and B to explain whether each tax is progressive, proportional, or regressive. State the percentages paid in your explanation.

- Explain whether total taxes (as a percentage of income) are progressive, proportional, or regressive.

- State each taxpayer's net income.

Making Personal Finance Decisions

Handout 4B.2: Assessment—Answer Key

Directions: Use the information on Handout 4B.1 to calculate for each taxpayer the taxes paid, total tax rates, and net income.

Taxpayer A has a gross income of $200,000 and spends 50 percent of her income on goods and services taxable under the sales tax.

Taxpayer B has a gross income of $40,000 and spends 70 percent of his income on goods and services taxable under the sales tax.

Taxes	Taxpayer A		Taxpayer B	
	$ Paid	**% Paid**	**$ Paid**	**% Paid**
Income tax	52,000	26	7,000	17.5
Payroll tax	6,000	3	2,400	6
Sales tax	5,000	2.5	1,400	3.5
Total taxes*	63,000	31.5	10,800	27
Net income	137,000		29,200	
*Includes income, payroll, and sales taxes.				

Write a paragraph that addresses the following:

- Describe each type of tax and use Taxpayers A and B to explain whether each tax is progressive, proportional, or regressive. State the percentages paid in your explanation.

- Explain whether total taxes (as a percentage of income) are progressive, proportional, or regressive.

- State each taxpayer's net income.

The income tax is progressive. Taxpayer A had much higher gross income and paid a higher tax rate (26 percent) than Taxpayer B (17.5 percent). The payroll tax is regressive. Even though Taxpayer A has a much higher income, she paid a lower percentage of income (3 percent) in payroll taxes than Taxpayer B (6 percent). The sales tax is proportional based on purchases of goods and services but regressive relative to income. Even though taxpayer A has a much higher income, she paid a lower percentage of income (2.5 percent) in sales taxes than Taxpayer B (3.5 percent). The total taxes paid by both are progressive. Taxpayer A had a higher income and paid a higher percentage (31.5 percent) of her income in taxes than taxpayer B (27 percent). After the taxes are paid, Taxpayer A has a higher net income ($137,000) than Taxpayer B ($29,200).

Standards and Benchmarks

Voluntary National Content Standards in Economics

Standard 16: Role of Government and Market Failure. There is an economic role for government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also have direct or indirect effects on people's incomes.

- • Benchmarks: Grade 8

    3.   Most federal government tax revenue comes from personal income and payroll taxes. Payments to Social Security recipients, the costs of national defense and homeland security, medical expenditures (such as Medicare), transfers to state and local governments, and interest payments on the national debt constitute the bulk of federal government spending.

    4.   Most state and local government revenues come from sales taxes, grants from the federal government, personal income taxes, and property taxes. The bulk of state and local government revenue is spent for education, public welfare (including hospitals and health), road construction and repair, and public safety.

- • Benchmark: Grade 12

    10. Different tax structures affect consumers and producers differently.

National Standards for Financial Literacy

Standard 1: Earning Income. Income for most people is determined by the market value of their labor, paid as wages and salaries. People can increase their income and job opportunities by choosing to acquire more education, work experience, and job skills. The decision to undertake an activity that increases income or job opportunities is affected by the expected benefits and costs of such an activity. Income also is obtained from other sources such as interest, rents, capital gains, dividends, and profits.

- • Benchmarks: Grade 12

    7.   Taxes are paid to federal, state, and local governments to fund government goods and services and transfer payments from government to individuals. The major types of taxes are income taxes, payroll (Social Security) taxes, property taxes, and sales taxes.

    8.   People's sources of income, amount of income, as well as the amount and type of spending affect the types and amounts of taxes paid.

Making Personal Finance Decisions

Lesson 5A:

Making a Budget—It Is All Spending!

Rule 5: Live within your means.

People work to earn income to purchase goods and services now (spending), later (saving), or for someone else (sharing). Because income is limited, the amount of goods and services people can buy is limited. These lessons look at how to allocate, or budget, your income without exceeding the income you earn.

Lesson Description

Students discover that all elements of a budget are essentially spending on goods and services. They are shown a process for establishing a budget.

Standards and Benchmarks (see page 110)

Grade Level

9-12

Concepts

Budget

Financial investment

Gross income

Net income

Saving

Spending

Compelling Question

How do people plan for regular, irregular, and future spending?

Objectives

Students will be able to

- distinguish among various types of spending: regular (variable and fixed), irregular, and future and

- follow a process to establish a budget.

Materials

- Visuals 5A.1: Elements of a Budget or Spending Plan

- Visuals 5A.2: The Budgeting Process

- Handout 5A.1: Assessment, one copy for each student

Time Required

30 minutes

Procedure

1. Begin the lesson by asking the following:

   - Why do people work? (*To earn income to buy goods and services they want*)

   - Once you earn income, what are some of the things you can do with it? (*Answers will vary but may include spending on goods and services, saving, paying taxes, or sharing it with others.*)

2. Explain that while we can do many things with money, these things have one thing in common: They *all* represent spending. **Spending** is using some or all of your income to buy things you want now. Buying a video game, a pizza, or a new car are examples of what we generally think of as spending.

3. Discuss the following:

   - Why do people save? (*Usually so they can spend on goods and services later*)

   - **Saving** is not spending on current consumption. It involves giving up some current consumption for future consumption—that is, setting aside part of your income today for future spending on goods and services.

- People may invest part of their savings in hope of growing their wealth over time so they can spend it on goods and services later, such as in retirement.

- What do people get from paying taxes? (*They get government-provided goods and services, such as roads, schools, police and fire protection, and national defense. Through government transfer programs funded by taxes, people help the disadvantaged [e.g., the poor, unemployed, elderly, or disabled] buy goods and services.*)

- Why do people give to churches and charitable organizations? (*Answers will vary but should include to help people who may be unable to buy or obtain goods and services.*)

- Emphasize that when people share their income, they are essentially spending on goods and services for others.

4. Define a **budget** as a plan for managing income, spending, and saving during a given period. It is an itemized summary of probable income and expenses for a given period.

5. Display *Visual 5A.1: Elements of a Budget or Spending Plan*. Define monthly **gross income** as the total amount of income a person earns. Explain that before making decisions about how to spend income, you need to determine what your monthly net income is (see Unit Four: Paying Taxes). Define **net income** as gross income minus taxes (and possibly other deductions, such as for insurance).

6. Explain the following and refer to the examples on Visual 5A.1:

- There are three ways to allocate monthly net income—that is, three ways to *spend* net income: regular spending, irregular spending, and future spending.

Regular Spending

- Regular spending is for goods and services normally or regularly purchased during a month.

- Regular spending can be broken down further into fixed spending and variable spending.

- An expense is considered *fixed* if the amount spent is the same every month, such as a car or house payment.

- An expense is considered *variable* if it can vary from month to month, such as for food, utilities, or entertainment.

Irregular Spending (Short-Term Saving)

- *Irregular spending* (also called periodic spending) is for goods and services that are not normally purchased every month but on a different payment schedule (such as annually or semiannually) or on an irregular basis.

- Irregular spending is allocating income to what most people think of as short-term saving.

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- For example, a $600 fee might be charged annually. To prepare for this irregular spending, a person could save $50 per month.

Future Spending (Long-Term Saving)

- *Future spending* is for the purchase of goods and services in the future, typically beyond one year.

- Future spending is allocating income to what most people think of as *long-term saving* or investing.

- For example, a person might save 10 percent of his or her income over an entire career (40 years or more) to spend in retirement.

7. Explain that the elements of a budget are all the ways your income can be spent.

8. Display *Visual 5A.2: The Budgeting Process*. Explain that the visual shows a four-step process for creating a budget or spending plan—one of many ways to do so.

    (**Teacher note:** *The spending on Visual 5A.2 assumes a household with a gross annual income of $54,000—a little more than the 2014 U.S. median household income of $53,657. For the most recent median household income data, see FRED® at https://fred.stlouisfed.org/graph/?g=2khG.*)

    Step 1: Determine Your Monthly Net Income

    - In Step 1, you determine your monthly net income, which is how much money you have to allocate each month.

    - Net income is calculated by subtracting taxes and other deductions, such as health insurance premiums, from your gross income (the actual amount you earned).

    - Net income may also be called your "take-home" pay or disposable income—it is the income that you have available for spending.

    - In the example, the household's gross income is $4,500 per month and its deductions are $1,000 (which include withholdings for income taxes, Social Security and Medicare taxes, and other deductions), leaving the household a net income of $3,500 to decide how to spend.

    Step 2: Plan Future Spending (Long-Term Savings)

    - In Step 2, you "pay yourself first"—you set aside money—save—to meet your long-term goals (such as a down payment on a house or savings for retirement, college tuition, or to start a business).

    - Not spending part of your current income is called saving.

    - Long-term savings are usually used to buy assets such as stocks, bonds, and certificates of deposit. The purchase of these assets is called **financial investment**.

    - How much you set aside to meet your long-term goals depends on your financial plan (see Unit Two: Planning and Tracking).

- In this example, the household saves $500 for long-term goals, leaving $3,000.

Step 3: Plan Irregular Spending (Short-Term Savings)

- In Step 3, you set aside money—save—to meet your short-term irregular expenses.

- How much you need to set aside each month is based on your annual irregular expenses divided by 12.

- This money is typically held in a savings account to pay for irregular expenses as they come up during the year.

- In this example, the household is expecting $6,000 in irregular expenses for the year, so they need to set aside $500 each month.

Step 4: Plan Regular Spending (Fixed and Variable)

- The remaining money is what you have left to meet your regular monthly expenses—both fixed and variable.

- It is best to think of the fixed expenses much like taxes and deductions in Step 1: Fixed expenses are commitments to pay for specific items.

- Fixed expenses must be paid *before* making any choices about spending on variable expenses. In this example, housing and transportation are fixed expenses, but fixed expenses could also include things such as cable, Internet, and phone services.

Closure

9. Explain that if you go through this budgeting process and don't have as much to spend on variable expenses (in Step 4) as you would like, you need to reconsider each of your expenditures as follows:

- Are your fixed expenses too high because, for example, you purchased (or rented) a house that is too big, a cable package that is too large, or a car that is too nice?

- Do you need to reduce some of your irregular expenses (such as the amounts allocated to vacations or gifts)?

- Do you need to rethink your long-term goals and decide if they are as valuable to you as having more money for variable spending now?

- Overall, what trade-offs should you consider for adjusting your budget based on your income and your goals—both short-term and long-term goals.

Assessment

10. Keep Visual 5A.2 displayed. Distribute a copy of *Handout 5A.1: Assessment* to each student. Review the directions and allow time for students to work.

Making Personal Finance Decisions

Handout 5A.1: Assessment—Answer Key

Directions: Imagine the information on Visual 5A.2 is your personal budget and answer the following questions.

1. What will happen to the "regular spending" part of your budget if you decide to allocate more money to future spending (long-term savings)?

    If I allocate more to future spending (long-term savings), I will have less money for regular spending.

2. How would you categorize an annual maintenance fee of $480 from your apartment landlord?

    This expense occurs annually, so it would be considered irregular spending (short-term saving).

3. How would you categorize $200 per month set aside for retirement?

    Setting aside $200 for retirement is future spending (long-term saving).

4. How can saving for retirement be considered "spending" even though you are actually saving the money?

    The reason you save money is to spend it in the future.

Visual 5A.1: Elements of a Budget or Spending Plan

Gross income – Deductions = Net income

Net income = Regular spending + Irregular spending + Future spending
(Short-term savings)   (Long-term savings)

Regular Monthly Spending (Fixed and Variable)

- Housing (e.g., rent or mortgage)

- Food (e.g., groceries and dining out)

- Transportation (e.g., car payment, gas, or bus pass)

- Utilities (e.g., electric, water/sewer, phone, cable, and oil/gas)

- Personal (e.g., apparel and personal care items)

- Entertainment (e.g., movies, hobbies, and sports)

- Miscellaneous

Irregular Yearly Spending (Short-Term Savings)

- Insurance (e.g., life, medical, home, and auto)

- Taxes and fees (e.g., property taxes and auto registration)

- Expected expenses (e.g., health care, education, vacations, gifts, home maintenance, and charity)

- Unexpected expenses (e.g., car repairs, health care, and home repairs)

- Near-term goals (e.g., car, home addition, and education)

Future Spending (Long-Term Savings)

- Retirement

- Other long-term goals (e.g., starting your own business)

Visual 5A.2: The Budgeting Process

Step 1. Determine Your Monthly Net Income

Gross monthly income − Deductions = Net income

Gross income: $54,000/yr., or $4,500/mo.

Deductions: $1,000/mo.

$4,500/mo. − $1,000/mo. = $3,500/mo.

Step 2. Plan Future Spending (Long-Term Savings)

(Long-term savings is determined by your financial plan.)

Long-term savings: $500/mo.

$3,500/mo. − $500/mo. = $3,000/mo.

Step 3. Plan Irregular Spending (Short-Term Savings)

(Determine yearly short-term savings and divide by 12)

Insurance/taxes ....$1,500/yr.

Expected expenses......................$2,500/yr.

Charity.......................................$1,000/yr.

Unexpected expenses ....$500/yr.

Near-term goals ....$500/yr.

Short-term savings......................$6,000/yr./12 = $500/mo.

$3,000/mo. − $500/mo. = $2,500/mo.

Step 4. Plan Regular Spending (Fixed and Variable)

Housing ....$800/mo.

Transportation ....$500/mo.

Food..$400/mo.

Utilities ....$300/mo.

Personal/health care...................$200/mo.

Entertainment............................$200/mo.

Miscellaneous ....$100/mo.

Regular spending.......................$2,500/mo.

Handout 5A.1: Assessment   Name:_____

Directions: Imagine the information on Visual 5A.2 is your personal budget and answer the following questions.

1. What will happen to the "regular spending" part of your budget if you decide to allocate more money to future spending (long-term savings)?

2. How would you categorize an annual maintenance fee of $480 from your apartment landlord?

3. How would you categorize $200 per month set aside for retirement?

4. How can saving for retirement be considered "spending" even though you are actually saving the money?

Standards and Benchmarks

National Standards for Financial Literacy

Standard 2: Buying Goods and Services. People cannot buy or make all the goods and services they want; as a result, people choose to buy some goods and services but not others. People can improve their economic well-being by making informed spending decisions, which entails collecting information, planning, and budgeting.

- Benchmarks: Grade 8

    5. A budget includes fixed and variable expenses, as well as income, savings, and taxes.

    6. People may revise their budget based on unplanned expenses and changes in income.

- Benchmark: Grade 12

    6. People may choose to donate money to charitable organizations and other not-for-profits because they gain satisfaction from donating.

Standard 3: Saving. Saving is the part of income that people choose to set aside for future uses. People save for different reasons during the course of their lives. People make different choices about how they save and how much they save. Time, interest rates, and inflation affect the value of savings.

- Benchmark: Grade 8

    8. Different people save money for different reasons, including large purchases (such as higher education, autos, and homes), retirement, and unexpected events. People's choices about how much to save and for what to save are based on their tastes and preferences.

- Benchmark: Grade 12

    1. People choose between immediate spending and saving for future consumption. Some people have a tendency to be impatient, choosing immediate spending over saving for the future.

Lesson 5B:

Budget Trade-Offs—A Penny Here and a Penny There

Rule 5: Live within your means.

People work to earn income to purchase goods and services now (spending), later (saving), or for someone else (sharing). Because income is limited, the amount of goods and services people can buy is limited. These lessons look at how to allocate, or budget, your income without exceeding the income you earn.

Lesson Description

Students participate in an activity that illustrates that budgeting is really an allocation problem. They must decide how to allocate limited income among many alternatives, which requires trade-offs. For the activity, students are given pennies representing monthly personal income to allocate for their living expenses—to purchase goods and services for housing, food, transportation, and so on.

Standards and Benchmarks (see page 118)

Grade Level

9-12

Concepts

Budget

Trade-off

Compelling Question

Why must consumers make trade-offs when allocating their income among different spending options?

Objectives

Students will be able to

- describe the trade-offs involved in making a budget and

- create a budget and adjust it based on different income levels.

Materials

- 24 pennies for each student

- Handout 5B.1: Allocating Monthly Income, one copy for each student (or pairs of students) with the two pages copied onto separate sheets (so the students can lay the two pages side by side)

- Handout 5B.2: Assessment, one copy for each student

Time Required

30 minutes

Procedure

1. Remind students that decisionmaking involves trade-offs. Define a **trade-off** as giving up some of one thing to gain some of something else. Explain this is especially true when making a **budget**, which is a plan for managing income, spending, and saving during a given period.

2. Distribute *Handout 5B.1: Allocating Monthly Income* and 24 pennies to each student. (Option: Have the students work in pairs and share the 24 pennies.)

3. Explain that each penny represents about $100 in monthly gross income.

4. Have each student (or pair) set four pennies aside. Explain that these four pennies represent the taxes they must pay on their income. Therefore, each of them has $2,000 to spend after taxes. This is their net income.

   (**Teacher note:** *$2,000 per month, or $24,000 per year, may sound like a lot of money to most students. The expenditure amounts listed in each category of Handout 5B.1, however, are based on reasonably realistic real-world figures. Student will quickly discover that they cannot live as well as they might think.*)

5. Explain that Handout 5B.1 shows various categories of spending common to most consumers. For each category, as you spend more, you generally get more or better-quality items.

6. Instruct the students to use the grid on Handout 5B.1 to allocate their remaining 20 pennies to these various categories to satisfy as many wants as they can given their limited income. Allow 5 to 10 minutes for the students to make their allocations.

7. Explain that the students (or pairs) have each created a budget, or a plan, for how to spend net income each month.

8. Ask a few students (or pairs) to share how they allocated their pennies and why.

    (**Teacher note:** *There are many possible choices and the "right" allocation depends on how valuable each of these items is to the individual [or pair].*)

9. Tell the students that due to a loss of income, inflation, or an unexpected expense, they now have only 18 pennies to spend. They must now decide where to make cuts but must keep the number of pennies devoted to housing the same because housing is difficult and often costly to change in the short run. Allow a few minutes for the students to make their decisions.

10. Ask several students (or pairs) to explain what they gave up and why.

Closure

11. Explain the following:

    • Because income is limited, you can't have everything you want.

    • You must make decisions and consider the trade-offs.

    • Spending more in one category requires a trade-off—that is, giving up spending in another category. For example, you may want a cable package that includes many more channels. To spend additional dollars on cable, however, you have to give up spending dollars somewhere else. Or you might want a nicer house, but that will require spending less money on something else.

    • Making a budget is really deciding what is most important to you given that your income does not allow you to have everything you would like.

Assessment

12. Distribute a copy of *Handout 5B.2: Assessment* to each student and allow time for students to work (or assign as homework).

Handout 5B.2: Assessment—Answer Key

Directions: Using examples from the penny activity, write a paragraph to answer the following questions to explain how a budget is a spending plan that considers trade-offs.

• What were the most difficult choices you had to make when allocating your pennies?

• Which categories did you value the most? How did that affect your spending in that category?

• When you spent more in one category, what did you give up in another category? Provide examples from your budget.

• How did you reallocate your spending when you had less income?

Answers may be something like the following:

I found it hard choosing between _____ and _____ and _____ and _____. The category I valued the most was _____, so I spent the most money in that category. I gave up _____ to spend more money elsewhere. To reduce spending, I spent less in the categories I valued the least. (Alternatively, students might list the specific categories in which they reduced spending.)

Handout 5B.1: Allocating Monthly Income (page 1 of 2)

Name:_____

Directions: Use the grid below to allocate your income (pennies) among the spending categories below according to the guidelines given by your teacher. Each penny represents $100 in monthly gross income. For each category, as you spend more, you generally get more or better-quality items.

Income Taxes 4 (This amount must be allocated.)	**Round 1** __**4**__ pennies **Round 2** __**4**__ pennies

Housing (Including Utilities and Insurance)
 20   $300,000, newer, 3-4 bedrooms, 2+ baths house
 15   $225,000, 10-yr-old, 3-4 bedrooms, 2+ baths house
 10   $150,000, 20-yr-old, 2-bedroom, 2-bath house
   7   $100,000, 30-yr-old, 2-bedroom, 1-bath house
   5   $75,000, 30-yr-old+, 1-bedroom house or nice apartment
   4   3-room apartment
   3   2-room apartment
   2   1-room, older apartment
   1   Share a room with others or live in a car
   0   No shelter
	Round 1
	
	 _____ pennies
	
	 Round 2
	
	 _____ pennies

Transportation (Including Fuel, Oil, and Insurance)
 10   Luxury SUV or two late-model vehicles
   7   Luxury vehicle or two older vehicles
   5   Late-model, larger vehicle
   4   Late-model, smaller vehicle
   3   Older-model, dependable vehicle
   2   Older-model, questionable vehicle
   1   Unreliable vehicle or mass transit
   0   No vehicle
	Round 1
	
	 _____ pennies
	
	 Round 2
	
	 _____ pennies

Food (Eating In and Dining Out)
 10   Gourmet and specialty foods, upscale restaurants
   7   Good assortment of grocery foods, chain restaurants
   5   Grocery foods, fast-food restaurants
   4   Basic grocery foods, very limited dining out
   3   Staples plus some processed foods
   2   Staples only (minimum nutritional requirements met)
   1   Staples only (minimum nutritional requirements not met)
   0   No food
	Round 1
	
	 _____ pennies
	
	 Round 2
	
	 _____ pennies

Making Personal Finance Decisions

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Handout 5B.1: Allocating Monthly Income (page 2 of 2)

Clothing and Personal Care Goods and Services	**Round 1**	
10 New wardrobe every year, complete selection of personal care items		
7 Up-to-date wardrobe, many trendy items, most personal care items	_____ pennies	
5 Mostly up-to-date wardrobe, some trendy items, several personal care items		
4 Good wardrobe turnover, limited trendy items, complete toiletries		
3 Some wardrobe turnover, mostly department-store quality, most toiletries	**Round 2**	
2 Limited wardrobe turnover, mostly outdated items, some toiletries		
1 No real wardrobe turnover, "new" clothes are secondhand, basic toiletries	_____ pennies	
0 Clothes on your back, no toiletries		
Health/Dental Insurance	**Round 1**	
10 Complete coverage		
7 Low deductible, low co-pays, good prescription coverage	_____ pennies	
5 Medium deductible, low co-pays, some prescription coverage		
4 Medium deductible, medium co-pays, limited prescription coverage		
3 High deductible, medium co-pays, no prescription coverage	**Round 2**	
2 High deductible, high co-pays, no prescription coverage		
1 Very high deductible, need to use free clinics, no prescription coverage	_____ pennies	
0 No coverage		
Entertainment (Including Technology, Hobbies, and Vacations)	**Round 1**	
5 Full-service technology, non-local/2-week vacation, $100/week "fun" money	_____ pennies	
4 Good-service technology, non-local/1-week vacation, $75/week "fun" money		
3 Some-service technology, local/2-week vacation, $50/week "fun" money		
2 Very limited technology services, local/1-week vacation, $25/week "fun" money	**Round 2**	
1 No technology services, $25/week "fun" money		
0 No entertainment	_____ pennies	
Contributions (Charity, Non-Profit Organizations)	**Round 1**	
4 $400/month in contributions		
3 $300/month in contributions	_____ pennies	
2 $200/month in contributions	**Round 2**	
1 $100/month in contributions		
0 No contributions	_____ pennies	
Savings	**Round 1**	
5 $500/month savings		
4 $400/month savings	_____ pennies	
3 $300/month savings		
2 $200/month savings	**Round 2**	
1 $100/month savings		
0 No savings	_____ pennies	

Making Personal Finance Decisions

Handout 5B.2: Assessment   Name:_____

Directions: Using examples from the penny activity, write a paragraph to answer the following questions to explain how a budget is a spending plan that considers trade-offs.

- What were the most difficult choices you had to make when allocating your pennies?

- Which categories did you value the most? How did that affect your spending in that category?

- When you spent more in one category, what did you give up in another category? Provide examples from your budget.

- How did you reallocate your spending when you had less income?

Making Personal Finance Decisions

Standards and Benchmarks

National Standards for Financial Literacy

Standard 2: Buying Goods and Services. People cannot buy or make all the goods and services they want; as a result, people choose to buy some goods and services but not others. People can improve their economic well-being by making informed spending decisions, which entails collecting information, planning, and budgeting.

- Benchmarks: Grade 8

    5. A budget includes fixed and variable expenses, as well as income, savings, and taxes.

    6. People may revise their budget based on unplanned expenses and changes in income.

- Benchmark: Grade 12

    6. People may choose to donate money to charitable organizations and other not-for-profits because they gain satisfaction from donating.

Standard 3: Saving. Saving is the part of income that people choose to set aside for future uses. People save for different reasons during the course of their lives. People make different choices about how they save and how much they save. Time, interest rates, and inflation affect the value of savings.

- Benchmark: Grade 8

    8. Different people save money for different reasons, including large purchases (such as higher education, autos, and homes), retirement, and unexpected events. People's choices about how much to save and for what to save are based on their tastes and preferences.

- Benchmark: Grade 12

    1. People choose between immediate spending and saving for future consumption. Some people have a tendency to be impatient, choosing immediate spending over saving for the future.

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Unit 6

Saving

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Lesson 6A:

Time Preference—Why It Is Hard to Save

Rule 6: Pay yourself first.

Saving is making the decision to buy goods and services in the future rather than today. It can be difficult to save because people naturally prefer to enjoy things now and incur costs later. Banks offer interest as an incentive for people to save. These lessons look at why it is hard to save and why it pays to save (the opportunity to earn compound interest).

Lesson Description

Students investigate the decision to save as a choice between spending now or spending later and how people's natural preference to enjoy goods and services now affects this decision.

Standards and Benchmarks (see page 128)

Grade Level

9-12

Concepts

Income

Interest

Net income

Saving

Compelling Question

How do costs and benefits influence saving?

Objectives

Students will be able to describe how the timing of benefits and costs can affect the choice to save or spend.

Materials

- Visual 6A.1: Personal Saving Rate (1959-2016)
- Visual 6A.2: The Timing of Benefits and Costs
- Handout 6A.1: Assessment, one copy for each student

Time Required

20 minutes

Procedure

1. Remind students that the main reason people work is to earn **income** to buy the goods and services they want. Income is the payment people receive for providing resources in the marketplace. When people work, they provide human resources (labor) and in exchange receive income in the form of wages or salaries. People can also earn income in the forms of rent, profit, and interest. Discuss the following:

    - Once people receive income, what are the three basic things they end up allocating it to? (*Spending, paying taxes, and saving*)

2. Explain the following:

    - Spending, paying taxes, and saving are all different ways of buying goods and services to satisfy your wants.

    - Obviously, when you spend income, you receive goods and services now.

    - When you pay taxes, you receive goods and services provided by the government, such as national defense, the legal system, highways, education, police and fire protection, libraries, parks, and many other goods and services provided by federal, state, and local governments.

    - When you decide to save some of your income, you are choosing to buy goods and services later.

    - All income is fundamentally allocated to the purchase of goods and services because that is what gives people satisfaction and provides the incentive to work.

3. Define **net income** as gross income minus taxes. Explain that people have only a limited amount of control over how much they pay in taxes (to the extent they can vote

for different candidates), so the basic question people face is how much of their net income they will spend now and how much they will save to spend later.

4. Define **saving** as keeping some income to buy goods and services in the future.

5. Tell the students that the U.S. personal saving rate has fluctuated over time. Display *Visual 6A.1: Personal Saving Rate (1959-2016)* (or show students the current data on FRED® at https://fred.stlouisfed.org/graph/?g=3YaA.) Discuss the following:

    •   What has been the trend in personal saving over time? (*Generally speaking, the personal saving rate has decreased over time.*)

    •   What is the current personal saving rate? (See current data on FRED® at https://fred.stlouisfed.org/graph/?g=3YaA. Mouse over the end of the trend line to see a pop-up of the most recent rate.)

6. Explain that some households have negative savings, which means that they are not only not saving but spending more than they earn.

    •   How is it possible for people to spend more than they earn? (*They can spend savings or borrow money.*)

    •   Why do you think people save so little of their income? (*Answers will vary.*)

7. Write "Option 1: $100 today" and "Option 2: $100 one year from today" on the board. Tell the students they may choose either option. Ask them to raise their hands if they would prefer Option 2. (None are likely to choose this option.)

8. Change Option 2 to "$102 a year from today" and repeat the question. (None are likely to choose this option either.)

9. Continue raising the amount of Option 2 ($105, $110, $120, $150, $200, $500, etc.) and repeat the question until everyone (or almost everyone) chooses Option 2. (Some students may never choose Option 2. However, if pressed, most would admit they would wait for $1 million a year from today if it were a serious offer.)

10. Explain that what is being demonstrated is people's natural preference for when they prefer to receive benefits. Basically, people prefer to receive benefits sooner rather than later. To persuade them to wait requires offering a benefit.

11. Return to the board and change Option 2 to the original option—"$100 one year from today." (Option 1 remains the same.) Tell the students that these now refer to a payment they must make. Ask them to raise their hands if they would prefer Option 2. (Most of the students will likely choose Option 2).

12. Explain that people's preference for costs is the opposite of benefits. They prefer to pay (incur) costs later rather than sooner.

13. Display *Visual 6A.2: The Timing of Benefits and Costs*. Discuss with the students the timing of the benefits and costs of each activity noted on the visual.

Activity	Now or later?	
	Benefits	**Costs**
Eating junk food	Now	Later
Exercising	Later	Now
Staying up late	Now	Later
Smoking	Now	Later
Practicing a musical instrument	Later	Now
Studying	Later	Now
Borrowing money	Now	Later
Saving	Later	Now

14. Explain that although people prefer benefits now and costs later, this natural preference can be overcome if there is some extra reward or incentive to wait.

15. Define **interest** as the price of using someone else's money. When people place their money in a bank, the bank uses the money to make loans to other people. In return, the bank pays interest to the account holder. Interest payments are based on the amount you save and how long you save. Interest is an incentive to save money.

Closure

16. Discuss the following questions to review the important content in the lesson:

    • What is income? (*The payment people receive for providing resources in the marketplace*)

- What type of income do most people earn? (*Wages or salaries for providing their human resource [labor]*)

- What other types of income can people earn? (*Rent, profit, or interest*)

- What is net income? (*Gross income minus taxes*)

- What is spending? (*Buying goods and services now*)

- What is saving? (*Keeping some income to buy goods and services in the future*)

- What has been the trend in the personal saving rate over time in the United States? (*It is decreasing: People have tended to save at a lower rate over time.*)

- How do costs and benefits influence saving? (*People prefer to enjoy things now [benefits] and pay costs later. This preference makes it difficult for people to save— to save they have to give up something [a cost] and buy goods and services in the future [a benefit].*)

- What is interest? (*Interest is the price of using someone else's money.*)

- What does "the price of using someone else's money mean? (*People prefer to enjoy the benefits of having money now. If you use [borrow] someone's money, you must compensate them with interest for making them wait to use it. Likewise, when you deposit money at a bank rather than spending it, the bank pays you interest for the use of your money.*) Point out that when banks pay interest they are providing an incentive—a benefit—that might encourage people to save (that is, outweigh the cost of giving something up now.)

Assessment

17. Distribute a copy of *Handout 6A.1: Assessment* to each student and allow time for students to work (or assign as homework).

Handout 6A.1: Assessment—Answer Key

Directions: Use the knowledge you have learned in this lesson to write a paragraph for each numbered item below.

1. Explain people's natural preferences for costs and benefits when receiving (buying) something. (*People prefer to receive benefits now and incur costs in the future.*)

   - Describe how this natural reference plays out when a consumer decides whether to buy something with cash or with a credit card? (*Credit cards allow consumers to have the benefit of the good now and pay the cost in the future.*)

   - If a credit card company increases the interest rate it charges, how might consumers with that card change how they use that credit card? (*A higher credit card interest rate will increase the future cost of goods or services*

purchased, so consumers with that card are more likely to pay with cash or find a card with a lower rate.)

2. Explain how interest is the price of using some else's money. (*People prefer to enjoy the benefits of having their money now. If you use [borrow] someone's money, you must compensate them with interest for making them wait to use it. Likewise, when you deposit money at a bank rather than spending it, the bank pays you interest for the use of your money.*)

    •   Describe how interest acts an incentive for people to save. (*People do not naturally postpone spending, but interest acts as an incentive to overcome that natural tendency.*)

    •   What happens to the incentive to save as interest rates increase? (*The higher the interest rate, the greater the incentive to save.*)

Visual 6A.1: Personal Saving Rate (1959-2016)

NOTE: Gray bars indicate recessions as determined by the National Bureau of Economic Research. For the most recent data, go to https://fred.stlouisfed.org/series/PSAVERT.

SOURCE: FRED®, Federal Reserve Bank of St. Louis.

Making Personal Finance Decisions

Visual 6A.2: The Timing of Benefits and Costs

Activity	Now or later?	
	Benefits	**Costs**
Eating junk food		
Exercising		
Staying up late		
Smoking		
Practicing a musical instrument		
Studying		
Borrowing money		
Saving		

Handout 6A.1: Assessment   Name:_____

Directions: Use the knowledge you have learned in this lesson to write a paragraph for each numbered item below.

1.   Explain people's natural preferences for costs and benefits when receiving (buying) something.

   •   Describe how this natural reference plays out when a consumer decides whether to buy something with cash or with a credit card?

   •   If a credit card company increases the interest rate it charges, how might consumers with that card change how they use that credit card?

2.   Explain how interest is the price of using some else's money.

   •   Describe how interest acts an incentive for people to save.

   •   What happens to the incentive to save as interest rates increase?

Standards and Benchmarks

National Standards for Financial Literacy

Standard 3: Saving. Saving is the part of income that people choose to set aside for future use. People save for different reasons during the course of their lives. People make different choices about how they save and how much they save. Time, interest rates, and inflation affect the value of savings.

- Benchmark: Grade 4

    1. Income is saved, spent on goods and services, or used to pay taxes.

    2. When people save money, they give up the opportunity to spend that money to buy things now in order to buy things later.

- Benchmark: Grade 8

    4. When interest rates increase, people earn more on their savings and their savings grow more quickly.

- Benchmark: Grade 12

    1. People choose between immediate spending and saving for future consumption. Some people have a tendency to be impatient, choosing immediate spending over saving for the future.

Lesson 6B:

Simple and Compound Interest—Why It Is Great to Save

Rule 6: Pay yourself first.

Saving is making the decision to buy goods and services in the future rather than today. It can be difficult to save because people naturally prefer to enjoy things now and incur costs later. Banks offer interest as an incentive for people to save. These lessons look at why it is hard to save and why it pays to save (the opportunity to earn compound interest).

Lesson Description

Formulas for simple and compound interest, as well as the Rule of 72, are explained and used to illustrate the benefit of saving in general and the benefit of saving early in particular.

Standards and Benchmarks (see page 141)

Grade Level

9-12

Concepts

Annual interest rate

Compound interest

Principal

Rule of 72

Simple interest

Compelling Question

How can savers benefit from compound interest?

Objectives

Students will be able to

- calculate the change in the value of an asset with (i) simple interest or (ii) compound interest and

- estimate the change in the value of an asset using the Rule of 72.

Materials

- Visual 6B.1: Simple Interest

- Visual 6B.2: Compound Interest

- Visual 6B.3: The Rule of 72

- Visual 6B.4: Jack and Jill

- Handout 6B.1: Calculating Interest

- Handout 6B.2: Assessment

- A calculator for each student

Time Required

45 minutes

Procedure

1. Write "$100" on the board. Define **simple interest** as an annual payment based on a percentage of the amount you save. This percentage is called the **annual interest rate**. The original amount of money you deposit or invest, excluding any interest or dividends, is called the **principal**.

2. Discuss the following:

   - Suppose that you save $100 at an annual interest rate of 8 percent. (Add on to "$100" to have "$100 × 0.08 = $8.00" on the board).

   - 8 percent written in decimal terms is 0.08. (Instruct the students to move the decimal point in the percentage figure two places to the left.)

   - $8 is the interest earned in one year, so you would have $108.00 after one year.

   - $108 is the original $100 plus the interest. (Write the following on the board.):
     $100 × 0.08,
     or $100 + $100 (0.08),
     which can be written as $100 (1 + 0.08).

3. Display *Visual 6B.1: Simple Interest*. Explain that the visual shows a general formula for calculating interest as just discussed. Illustrate the use of the formula with the information from Step 2:

4. Distribute a copy of *Handout 6B.1: Calculating Interest* and a calculator to each student. Have the students practice using the simple interest formula with the saving scenarios on Part 1 of Handout 6B.1. They will need to calculate both the interest earned and the value of the savings after one year. Allow time for students to work and then review their answers.

Handout 6B.1: Calculating Interest: Part 1—Answer Key

Principal	Annual interest rate	# of Years	Interest earned	Value
$ 50	5%	1	$ 2.50	$ 52.50
$200	7%	1	$14.00	$214.00
$ 60	10%	1	$ 6.00	$ 66.00
$ 40	4%	1	$ 1.60	$ 41.60

5. Discuss the following:

    •   What would happen if you left the $108 in savings for another year at the same interest rate—8 percent? (*They would make more interest.*)

6. Instruct the students to use the simple interest formula to determine how much their savings of $108 would be at the end of the second year. (*$108 × [1 + 0.08] = $116.64.*) Discuss the following:

    •   How much interest would be earned the second year? (*$8.64*)

    •   Why would the interest in the second year be more than in the first year? (*Because interest was earned not only on the original $100, but also on the previous interest of $8.*)

7. Define **compound interest** as interest that is earned not only on the principal but also on the interest already earned.

8. Display *Visual 6B.2: Compound Interest*. Walk the students through the steps of calculating interest over three years.

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9. Reference the "After N Years" and "In general" formulas on Visual 6B.2. Discuss the following:

    • Predict the effect of the amount of the annual interest rate and the number of years on the value of the savings at the end. (*Both the annual interest rate and the number of years are directly related to the ending value; that is, the larger r and N, the greater is V.*)

10. Direct the students to Part 2 of Handout 6B.1. Have them use the compound interest formula to determine the ending savings value for each of the scenarios. Allow time for students to work and then review their answers.

    Handout 6B.1: Calculating Interest: Part 2—Answer Key

Principal	Annual interest rate	# of Years	Value
$ 50	12%	6	$ 98.69
$200	8%	9	$399.80
$100	6%	12	$201.22
$ 20	4%	18	$ 40.52

11. Discuss the following:

    • What do you notice about the ending values relative to the initial values? (*The ending values are about double the initial values.*)

12. Display *Visual 6B.3: The Rule of 72*. Discuss the following:

    • The **Rule of 72** is a rule of thumb associated with the compound interest formula. It allows you to estimate the number of years it will take for a financial investment to double its value.

    • Divide 72 by the interest rate (percentage) to determine the approximate number of years it will take the investment to double its value.

    • The more times the value is allowed to double, the faster it will grow. (Go through the examples on the visual.)

13. Display *Visual 6B.4: Jack and Jill*. Instruct the students to use the Rule of 72 to estimate the ending values for Jack and Jill. Allow time for students to work and then review their answers. (Answers: *Jack: $40,000. Jill: $160,000.*)

14. Explain the following:

- With an 8 percent annual interest rate, both Jack's and Jill's savings double every 9 years.

- Jill leaves her savings in for 45 years and it doubles five times. She ends up with around $160,000.

- Jack leaves his savings in for far fewer years—27 years. His doubles only three times, and he ends up with $40,000.

- Although they both saved $5,000 and earn an 8 percent annual interest rate, Jill ends up with four times more money than Jack simply because she saved earlier.

- What lesson is learned from Jack and Jill? (*Start saving early to take advantage of compound interest.*)

Closure

15. Discuss the following:

- What is simple interest? (*Interest paid on the principal.*)

- What is compound interest? (*Interest paid on the principal as well as the interest earned previously.*)

- What is the Rule of 72? (*A rule of thumb associated with the compound interest formula that allows you to estimate the number of years it will take a financial investment to double its value*)

16. Explain the following:

- While it can be difficult to put off spending, interest is the reward for saving.

- Because of the power of compound interest, the reward for saving can be very large.

- Jill gave up the opportunity to buy $5,000 worth of goods and services today, but she will be able to buy $160,000 worth of goods and services when she is 65 years of age. While inflation will likely reduce the real value of her money, she will still be able to buy and enjoy significantly more goods and services in the future than she could have bought with $5,000 today.

- For Jack, the opportunity cost of waiting to save was very large—he ended up able to buy only a fourth of what Jill could buy even though he saved the same amount. For example, say you have a choice between buying a car now or saving that money at an 8 percent interest rate and buying a car later. If you buy the car now, that is what you have, one car. If you save, you could have enough money to buy two cars 9 years from now or four cars 18 years from now, or eight cars (or a house!) 27 years from now.

- What important factors should a saver consider to maximize the benefits of compound interest? (*Save often/regularly, start saving early, get the highest interest rate possible, and leave your savings in the account*)

- American humorist, Will Rogers, summed saving up this way: "The best way to double your money is to fold it in half and put it in your pocket."

Assessment

17. Distribute a copy of *Handout 6B.1: Assessment* to each student and allow time for students to work (or assign as homework).

Handout 6B.2: Assessment—Answer Key

Directions: Use what you have learned in this lesson to answer the following questions:

1. Imagine you receive a graduation gift of $5,000 from a wealthy uncle with a letter that encourages you to save the money for your old age. Also imagine that you are able to average 9% interest on the principal.

    a. How much (simple) interest will you receive on your savings after one year? (*$450*)

    b. What will the value of your savings be after that one year? (*$5,450*)

    c. What will the value be after 10 years (use the compound interest formula)? (*$11,836.82*)

    d. How many years will it take for your savings to double in value? (*8 years*)

    e. Say you were 18 years of age when you deposited the money and you will withdraw it at 66 years of age. How many times will the money have doubled in value during that time? (*6 times*)

    f. How much money will be in the account when you withdraw it at 66? (*$320,000*)

2. Now imagine you are 66 and have withdrawn your savings. You have decided to gift $5,000 to your young nephew or niece for graduation. Write a letter to accompany the check that explains why he or she should start saving early. (*The letter should explain that the best way to take advantage of compound interest is to save often/regularly, start early, get the highest interest rate possible, and leave the savings in the account*).

Visual 6B.1: Simple Interest

Ending Value (Balance) with Simple Interest

$$V = P(1 + r)$$

V = Value (balance) after 1 year

P = Principal (initial amount saved)

r = Annual interest rate

Principal	Annual interest rate	# of Years	Interest earned	Value
$ 50	5%	1		
$200	7%	1		
$ 60	10%	1		
$ 40	4%	1		

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Visual 6B.2: Compound Interest

Compound Interest
Starting principal: $100

After 1 Year: $100 + $100 (0.08) = $100 (1 + 0.08) = **$108.00**

$= $100 (1 + 0.08)$

After 2 Years: $108 + $108 (0.08) = $108 (1 + 0.08) = **$116.64**

$= [\$100 (1 + 0.08)](1 + 0.08)$

$= \$100 (1 + 0.08)^2$

After 3 Years: $116.64 + $116.64 (0.08) = $116.64 (1 + 0.08) = **$125.97**

$= [\$100 (1 + 0.08)^2] (1 + 0.08)$

$= \$100 (1 + 0.08)^3$

After N years: $= \$100 (1 + 0.08)^N$

In general: $V = P (1 + r)^N$

V = Value after N years

P = Principal

r = Annual interest rate

N = Number of years

Visual 6B.3: The Rule of 72

Years to double = 72/Interest rate

4%………72/4 = 18 years

6%………72/6 = 12 years

9%………72/9 = 8 years

12%………72/12 = 6 years

$1 saved at a 12% interest rate, after…

6 years = $2	30 years = $32
12 years = $4	36 years = $64
18 years = $8	42 years = $128
24 years = $16	48 years = $256

$4,000 saved at age 17 at a 12% annual interest rate, after…

48 years (age 65) = $1,024,000 = Millionaire

(It doubles 8 times!)

Visual 6B.4: Jack and Jill

Jack saves $5,000 when he is 38 years old and puts it in a savings account with an 8% annual interest rate.

Approximately how much money will he have in the account when he is 65 years old?

Jill saves $5,000 when she is 20 years old and puts it in a savings account with an 8% annual interest rate.

Approximately how much money will she have in the account when she is 65 years old?

Handout 6B.1: Calculating Interest   Name:_____

Part 1: Simple Interest

Practice using the simple interest formula with the saving options below. Calculate both the amount of interest earned and the value of the savings after one year.

$$V = P (1 + r)$$

V = Value (balance) after 1 year

P = Principal (initial amount saved)

r = Annual interest rate

Principal	Annual interest rate	# of Years	Interest earned	Value
$ 50	5%	1		
$200	7%	1		
$ 60	10%	1		
$ 40	4%	1		

Part 2: Compound Interest

Determine the ending value of savings in each of the following scenarios using the compound interest formula.

$$V = P (1 + r)^N$$

V = Value after N years

P = Principal

r = Annual interest rate

N = Number of years

Principal	Annual interest rate	# of Years	Value
$ 50	12%	6	
$200	8%	9	
$100	6%	12	
$ 20	4%	18	

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Handout 6B.2: Assessment

Name:_____

Directions: Use what you have learned in this lesson to answer the following questions.

1. Imagine you receive a graduation gift of $5,000 from a wealthy uncle with a letter that encourages you to save the money for your old age. Also imagine that you are able to average 9% interest on the principal.

    a. How much (simple) interest will you receive on your savings after one year?

        _____

    b. What will the value of your savings be after that one year?

        _____

    c. What will the value be after 10 years (use the compound interest formula)?

        _____

    d. How many years will it take for your savings to double in value?

        _____

    e. Say you were 18 years of age when you deposited the money and you will withdraw it at 66 years of age. How many times will the money have doubled in value during that time?

        _____

    f. How much money will be in the account when you withdraw it at 66?

        _____

2. Now imagine you are 66 and have withdrawn your savings. You have decided to gift $5,000 to your young nephew or niece for graduation. Write a letter to accompany the check that explains why he or she should start saving early.

Standards and Benchmarks

National Standards for Financial Literacy

Standard 3: Saving. Saving is the part of income that people choose to set aside for future use. People save for different reasons during the course of their lives. People make different choices about how they save and how much they save. Time, interest rates, and inflation affect the value of savings.

- •   **Benchmark: Grade 4**

    2.   When people save money, they give up the opportunity to spend that money to buy things now in order to buy things later.

- •   **Benchmark: Grade 8**

    4.   When interest rates increase, people earn more on their savings and their savings grow more quickly.

    5.   Principal is the initial amount of money upon which interest is paid.

    6.   Compound interest is the interest that is earned not only on the principal but also on the interest already earned.

    7.   The value of a person's savings in the future is determined by the amount saved and the interest rate. The earlier people begin to save, the more savings they will be able to accumulate, all other things equal, as a result of the power of compound interest.

- •   **Benchmark: Grade 12**

    1.   People choose between immediate spending and saving for future consumption. Some people have a tendency to be impatient, choosing immediate spending over saving for the future.

Making Personal Finance Decisions

Lesson 7A:

The Spending Decision—Colas and Hot Dogs

Rule 7: Spend wisely.

Because income is limited, people must make decisions about which goods and services to buy to maximize the satisfaction (happiness) they get from their income. These lessons look at things to consider when making choices about spending (What does it mean to get a "good deal"?) and show that "spending on saving" may be one of the best ways to spend more than may seem possible with a given income.

Lesson Description

Students help Joe, a guy at a baseball game, decide how many colas and hot dogs to buy. Joe's "best" choice is shown to depend on not only what Joe likes but also the amount of money he has and the prices charged.

Standards and Benchmarks (see page 156)

Grade Level

9-12

Concepts

Budget (income) constraint

Diminishing returns

Marginal satisfaction

Satisfaction (happiness)

Compelling Question

How do people decide what combination of goods and services to buy?

Objectives

Students will be able to

- describe a budget (income) constraint,

- determine which combination of goods provides the most satisfaction (happiness) given a budget (income) constraint, and

- describe how changes in prices may change consumer choices.

Materials

- Visual 7A.1: Joe's Satisfaction Index

- Visual 7A.2: Joe's Satisfaction Alternatives

- Visual 7A.3: Joe's Diminishing Returns

- Visual 7A.4: Joe's Marginal Satisfaction

- Handout 7A.1: How Many Colas and Hot Dogs Should Joe Buy?, one copy for each student

- Handout 7A.2: Assessment, one copy for each student

- Handout 7A.2: Assessment—Answer Key

Time Required

45 minutes

Procedure

1. Begin the class by telling the students they are going to help Joe, a hungry and thirsty baseball lover at a baseball game, decide what to eat and drink. Colas are $2 each and hot dogs are $1 each. Joe has only $8 to spend. When someone has a limited amount of money to spend, we call the amount a **budget, or income, constraint**, because it constrains, or limits, what they can buy. Discuss the following:

   - How should Joe decide how many colas and hot dogs to buy? (*Answers will vary, but students will likely say that Joe should buy more of the good he likes the most.*)

2. Display a copy of *Visual 7A.1: Joe's Satisfaction Index*. Distribute a copy of *Handout 7A.1: How Many Colas and Hot Dogs Should Joe Buy?* to each student. Explain the following:

   - The index on the visual (and on the handout) shows how much total **satisfaction**, or happiness, Joe gets from different amounts of colas and hot dogs.

- For example, 3 colas give him 24 units of happiness, while 2 hot dogs give him 21 units of happiness.

- The index illustrates a general assumption economists make about the happiness people get from consuming goods: Consuming more of a good provides greater satisfaction or makes someone happier (more is preferred).

- As the number of each good rises, so does Joe's total happiness.

- For example, 4 colas give Joe 28 units of happiness, while 3 colas give him only 24 units.

3. Have the students complete the handout to determine the best combination of colas and hot dogs Joe should buy based on his satisfaction index. Allow time for student to work and then review their answers. (*Answers will vary. Most students, assuming the goal is to maximize Joe's satisfaction, will say 2 colas and 4 hot dogs. Some may choose a combination that is not affordable—that is, that costs more than $8. Some may have trouble figuring out which combination Joe should choose.*)

4. Remind students of the PACED decisionmaking model (Unit 1, Lesson 1B). Review the five step: 1) **D**efine the problem. (2) List the **a**lternatives. (3) Determine the **c**riteria. (4) **E**valuate the alternatives. (5) Make the **d**ecision. Discuss the following:

- What is Joe's problem? (*Joe has an $8 budget constraint. He is hungry and thirsty but has only $8 to spend.*)

5. Given that Joe has only $8, what are his possible alternatives—that is, what combinations of colas and hot dogs could he buy? (*He could purchase any of the following combinations or fewer of each.*)

Colas, $2 each	Hot dogs, $1 each
0	8
1	6
2	4
3	2
4	0

6. What is a reasonable criterion to use to rank Joe's alternatives? (*Answers will vary, but lead students to realize that the amount of satisfaction a combination of colas and hot dogs gives Joe would be a good criterion, since it would give him the most satisfaction possible.*)

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7.   Refer again to Visual 7A.1. Note that in the PACED model, the step after determining criteria is evaluating the alternatives. Discuss the following:

     •   How much satisfaction would Joe get from each of the possible alternatives?

8.   Display V*isual 7A.2: Joe's Satisfaction Alternatives*

     •   Given that Joe is trying to get the most satisfaction (happiness) for his $8, which combination of colas and hot dogs should he buy? (*2 colas and 4 hot dogs, since that combination yields him the most satisfaction—49 units*)

9.   Display *Visual 7A.3: Joe's Diminishing Returns*. Explain the following:

     •   There is another way of calculating the best decision for Joe.

     •   There are now two additional columns: The third column shows the amount of satisfaction added by each additional cola or hot dog. For example, since 2 colas give Joe 18 units of satisfaction and 1 only gives him 10 units, the second cola adds 8 units of satisfaction.

     •   This additional satisfaction is the **marginal satisfaction**; that is, the extra satisfaction from consuming 1 more unit of some good or service.

     •   Note that the amount of satisfaction added by each additional cola or hot dog consumed decreases. This decrease is based on a second common assumption made by economists about people's preferences: **diminishing returns**. Diminishing returns (with respect to satisfaction) means each additional unit of a good adds less satisfaction than the one before it.

     •   In this example, the first hot dog would make Joe the happiest because he is hungry. As he continues to eat more hot dogs, he would get fuller, so each additional hotdog would be less satisfying.

     •   The satisfaction Joe gets from each hot dog (or cola) is *not* the same—the first ones would give him more satisfaction than the later ones.

     •   The last column on the table is the amount of satisfaction each good adds divided by the price of that good—it tells how much satisfaction Joe gets per dollar spent on each unit.

     •   For example, for colas, the first cola would give him 10 units of satisfaction. At $2 per cola, the first cola would give him 5 units of satisfaction per dollar spent.

     •   For example, for hot dogs, the first hot dog would give him 12 units of satisfaction. Since it would cost him only $1, he would get 12 units of satisfaction per dollar spent. (Provide additional examples as necessary.)

     •   While Joe is buying colas and hot dogs with his money, he is really buying satisfaction. Thus, it is important to know how much satisfaction he gets from each dollar he spends.

10. Tell the students you are going to use the table to determine what Joe should buy and in what order. Discuss the following:

   - Suppose Joe has just sat down at the game and wants to get the most satisfaction for his $8. Which should he buy first, a cola or a hot dog? (*The first hot dog, because it would give him 12 units of satisfaction per dollar spent, while the first cola would only give him 5 units.*)

   - What should he buy next? (*The second hot dog, because it would give him 9 units of satisfaction per dollar, while the first cola would still only gives him 5 units of satisfaction*)

   - What should he buy next? (*The third hot dog.*)

   - What should he buy next? (*The choice is now between the fourth hot dog or the first cola. Since the first cola would give him 5 units of satisfaction per dollar and the fourth hot dog only 4 units, he should now buy the first cola.*)

   - How much has Joe spent so far? (*$5: 3 hotdogs at $1 each and 1 cola at $2*)

   - Since he still has money left, what should Joe buy next? (*Both the fourth hot dog and the second cola give him 4 units of satisfaction per dollar, so it doesn't matter which he chooses.*)

   - Suppose he chose the second cola, what should he buy next? (*The fourth hot dog—note that it is a better deal than the third cola, 4 units per dollar versus 3 units per dollar, but also note that he doesn't have enough money left to buy the third cola.*)

11. Explain that all of Joe's money has now been spent and that he ended up with the same combination as before—2 colas and 4 hot dogs. Explain that this must be the combination that gives him the most satisfaction because at each step he bought the greatest amount of satisfaction he could with his dollars.

12. Note that the amount of satisfaction generated by colas and hot dogs were fairly similar (for example, 5 colas generated 31 units of satisfaction, while 5 hot dogs generated 33 units). So, these numbers suggest that Joe likes colas and hot dogs roughly the same. Discuss the following:

   - Given that Joe likes colas and hot dogs roughly the same, why did Joe end up buying twice as many hot dogs as colas? (*The price of colas was twice as much as hot dogs, so colas were not as good of a deal in terms of satisfaction per dollar spent.*)

13. Explain that hot dogs were "a better deal" because Joe could buy the same amount of satisfaction for half the cost. This is a fundamental point of making a good spending decision: You should consider *the amount of satisfaction you get per dollar spent* when making a choice.

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14. Display *Visual 7A.4: Joe's Marginal Satisfaction*. Instruct the students to determine Joe's best spending choices if hot dogs were $2 and colas were $1. (*In this case, Joe would buy the first and second colas, then a cola and a hot dog, then a hot dog, and finally another cola. He would end up buying 4 colas and 2 hot dogs—just the opposite of the other scenario!*)

15. Explain that Joe's purc1hases now—4 colas and 2 hotdogs—seem to suggest he likes colas more than hot dogs. This change in behavior, however, is *not* because his preferences have changed—he still gets the same amount of happiness from each cola and each hot dog as he did before. Hot dogs have simply become a relatively worse deal as their price rises and the price of colas falls.

Closure

16. Explain the following:

    • When making spending decisions, consider the amount of satisfaction you get from each good per dollar spent if you want to maximize the satisfaction you get from your budget.

    • In other words, instead of thinking about buying particular goods such as colas or hot dogs, you should instead think about buying units of satisfaction and buy those goods that would give you the most satisfaction per dollar.

    • Clearly, as the price of a good goes down, it becomes a better buy because you get the same amount of satisfaction for fewer dollars spent.

Assessment

17. Distribute a copy of *Handout 7A.2: Assessment* to each student and allow time for students to work (or assign as homework). Review answers with *Handout 7A.2: Assessment—Answer Key*.

Visual 7A.1: Joe's Satisfaction Index

Colas	Units of total satisfaction (☺)
1	10
2	18
3	24
4	28
5	31
6	33

Hot dogs	Units of total satisfaction (☺)
1	12
2	21
3	27
4	31
5	33
6	34
7	34.8
8	35.2

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Visual 7A.2: Joe's Satisfaction Alternatives

Colas	Units of cola satisfaction	Hot dogs	Units of hot dog satisfaction	Units of total satisfaction (☺)
0	—	**8**	35.2	35.2
1	10	**6**	34	44
2	18	**4**	31	49
3	24	**2**	21	45
4	28	**0**	0	28

Visual 7A.3: Joe's Diminishing Returns

Joe's Satisfaction from Colas and Hot Dogs			
Colas	Units of total satisfaction (☺)	Units of marginal satisfaction* (M☺)	Units of M☺ per dollar (M☺ ÷ $2)
1	10	10	5
2	18	8	4
3	24	6	3
4	28	4	2
5	31	3	1.5
6	33	2	1

Hot dogs	Units of total satisfaction (☺)	Units of marginal satisfaction* (M☺)	Units of M☺ per dollar (M☺ ÷ $1)
1	12	12	12
2	21	9	9
3	27	6	6
4	31	4	4
5	33	2	2
6	34	1	1
7	34.8	0.8	0.8
8	35.2	0.4	0.4

*Remember: Marginal satisfaction is the extra satisfaction from consuming 1 more unit of a good or service.

Visual 7A.4: Joe's Marginal Satisfaction

Joe's Satisfaction from Colas and Hot Dogs			
Colas	**Units of total satisfaction (☺)**	**Units of marginal satisfaction* (M☺)**	**Units of M☺ per dollar (M☺ ÷ $1)**
1	10	10	10
2	18	8	8
3	24	6	6
4	28	4	4
5	31	3	3
6	33	2	2

Hot dogs	**Units of total satisfaction (☺)**	**Units of marginal satisfaction* (M☺)**	**Units of M☺ per dollar (M☺ ÷ $2)**
1	12	12	6
2	21	9	4.5
3	27	6	3
4	31	4	2
5	33	2	1
6	34	1	0.5
7	34.8	0.8	0.4
8	35.2	0.4	0.2

Handout 7A.1: How Many Colas and Hot Dogs Should Joe Buy?

The Problem

Joe is at a baseball game and is hungry and thirsty. He has only $8 to spend. What combination of colas and hot dogs should he buy to get the most satisfaction?

Joe's Satisfaction from Colas and Hot Dogs	
Colas	**Units of total satisfaction (☺)**
1	10
2	18
3	24
4	28
5	31
6	33

Hot dogs	**Units of total satisfaction (☺)**
1	12
2	21
3	27
4	31
5	33
6	34
7	34.8
8	35.2

Joe's Budget Constraint: $8	**The Best Choice for Joe**
Colas, $2 each	
Hot dogs, $1 each	_____ Colas and _____ Hot dogs

Making Personal Finance Decisions

Handout 7A.2: Assessment   Name:_____

Directions: Based on Joe having $8 to spend on hot dogs and colas at a baseball game, answer the following questions:

1. Explain why Joe's $8 budget constrains his spending.

2. Calculate Joe's marginal satisfaction per dollar if hot dogs are $1 and colas are $1.

3. Given Joe's satisfaction index, what should he buy to get the most satisfaction?

4. Compare Joe's best spending choices now with the example in class when colas were $2 and hot dogs were $1 and Joe's best spending choice was 2 colas and 4 hotdogs. How did the change in price change Joe's choices?

Joe's Satisfaction Index			
Colas	**Units of total satisfaction (☺)**	**Units of marginal satisfaction (M☺)**	**Units of M☺ per dollar (M☺ ÷ $1)**
1	10	10	
2	18	8	
3	24	6	
4	28	4	
5	31	3	
6	33	2	

Hot dogs	**Units of total satisfaction (☺)**	**Units of marginal satisfaction (M☺)**	**Units of M☺ per dollar (M☺ ÷ $1)**
1	12	12	
2	21	9	
3	27	6	
4	31	4	
5	33	2	
6	34	1	
7	34.8	0.8	
8	35.2	0.4	

Handout 7A.2: Assessment—Answer Key

Directions: Based on Joe having $8 to spend on hot dogs and colas at a baseball game, answer the following questions:

1. Explain why Joe's $8 budget constrains his spending.
   The $8 budget limits what he can buy.

2. Calculate Joe's marginal satisfaction per dollar if hot dogs are $1 and colas are $1.
   Answers are in the "M☺ per dollar" column below.

3. Given Joe's satisfaction index, what should he buy to get the most satisfaction?
   4 colas and 4 hot dogs

4. Compare Joe's best spending choices now with the example in class when colas were $2 and hot dogs were $1 and Joe's best spending choice was 2 colas and 4 hotdogs. How did the change in price change Joe's choices?
   Joe bought 4 hot dogs and 4 colas this time because it maximized his satisfaction per dollar. Because colas and hot dogs are now $1 each, he is able to purchase more goods. In this case, he could buy 2 extra colas.

Joe's Satisfaction Index			
Colas	Units of total satisfaction (☺)	Units of marginal satisfaction (M☺)	Units of M☺ per dollar (M☺ ÷ $1)
1	10	10	*10*
2	18	8	*8*
3	24	6	*6*
4	28	4	*4*
5	31	3	*3*
6	33	2	*2*

Hot dogs	Units of total satisfaction (☺)	Units of marginal satisfaction (M☺)	Units of M☺ per dollar (M☺ ÷ $1)
1	12	12	*12*
2	21	9	*9*
3	27	6	*6*
4	31	4	*4*
5	33	2	*2*
6	34	1	*1*
7	34.8	0.8	*0.8*
8	35.2	0.4	*0.4*

Making Personal Finance Decisions

Standards and Benchmarks

National Standards for Financial Literacy

Standard 2: Buying Goods and Services. People cannot buy or make all the goods and services they want; as a result, people choose to buy some goods and services and not buy others. People can improve their economic well-being by making informed spending decisions, which entails collecting information, planning, and budgeting.

- • Benchmark: Grade 4

    1. Economic wants are desires that can be satisfied by consuming a good, a service, or a leisure activity.

    3. People spend a portion of their income on goods and services in order to increase their personal satisfaction or happiness.

- • Benchmark: Grade 12

    1. Consumer decisions are influenced by the price of a good or service, the price of alternatives, and the consumer's income as well as his or her preferences.

Lesson 7B:

Big Spenders

Rule 7: Spend wisely.

Because income is limited, people must make decisions about which goods and services to buy to maximize the satisfaction (happiness) they get from their income. These lessons look at things to consider when making choices about spending (What does it mean to get a "good deal"?) and show that "spending on saving" may be one of the best ways to spend more than may seem possible with a given income.

Lesson Description

Students compare the spending behavior of two families to see how a higher saving rate can lead to not only greater savings but greater spending.

Standards and Benchmarks (see page 163)

Grade Level

9-12

Concept

Saving rate

Compelling Question

How does saving now affect future spending?

Objectives

Students will be able to calculate how different saving rates affect a savings balance and the ability to spend in the future.

Making Personal Finance Decisions

Materials

- Visual 7B.1: The Bigs versus the Littles

- Handout 7B.1: Saving Rate, one copy for each student

Time Required

30 minutes

Procedure

1. Explain that preceding lessons discussed two things that help savings grow: the annual interest rate and the length of time the money compounds. There is another important factor: your saving rate. Your **saving rate** is the percentage of your income that you save. For example, if you make $500 per week and save $50, your savings rate is $50/$500, or 10 percent.

2. Divide the class in half and then form small groups of three or four students within each half.

3. Distribute a copy of *Handout 7B.1: Saving Rate* to each student.

4. Explain that each group represents a family. Designate one-half of the small groups as Bigs families and the other half as Littles families. Instruct the students to record the following information for their families on Handout 7B.1:

   - The Bigs families are "big spenders" and have a saving rate of 5 percent.

   - The Littles families spend a smaller portion of their income and have a saving rate of 20 percent.

5. Explain that each family is to keep track of its income, spending, saving, and savings balance over several years as follows:

   - Each family starts with an income of $40,000, and the income will remain $40,000 each year.

   - Each family will earn 8 percent interest per year on its savings.

   - All interest earned each year will be added to income the next year.

   - For example, in Year 1, the Bigs have an income of $40,000, save $2,000 (5 percent of $40,000), spend $38,000 (their remaining income), and have a savings balance of $2,000 (the amount saved). And, the Bigs earned $160 in interest in Year 1 ($2,000 × 0.08 = $160).

- In Year 1, the Littles have an income of $40,000, save $8,000 (20 percent of $40,000), spend $32,000 (their remaining income), and have a savings balance of $8,000 (the amount saved). And, the Littles earned $640 in interest in Year 1 ($8,000 × 0.08 = $640).

- In Year 2, the Bigs will have an income of $40,160 ($40,000 plus the interest on their savings balance, $2,000 × 0.08 = $160).

- In Year 2, the Littles will have an income of $40,640 ($40,000 plus the interest on their savings balance, $8,000 × 0.08 = $640).

6. Instruct the groups to complete Handout 7B.1 by determining the income, saving, spending, and saving balance for Years 2 through 5. Remind the students that the interest earned each year on their savings is added to their $40,000 income the next year. (The answers are on Visual 7B.1.) Allow time for the groups to work and then ask groups to report their Year 5 results.

7. Display *Visual 7B.1: The Bigs versus the Littles*. Explain the following:

- After only 5 years, the Littles's spending is only $4,514 less than the Bigs's spending (it started $6,000 apart) and the Littles have saved over 4 times as much as the Bigs—$41,300 versus $10,080.

- The chart also shows the impact of the families continuing the same pattern over 35 years.

8. Instruct the groups to reflect on the chart for 5 minutes and to write down one observation. Allow time for students to work and then invite groups to report what they have written. (*Answers will vary but may include the following: The Littles saved more by Year 9 than the Bigs saved by Year 35. The Littles spent more than the Bigs by Year 16 and more than $6,000 more by Year 27. By Year 35, the Littles's income is 1.5 times that of the Bigs's, their spending is 20 percent higher, and their savings balance is 5 times higher.*)

Closure

9. Explain that because of their higher saving rate, the Littles ended up with more savings than the Bigs. However, from Year 16 on, the Littles had more to spend—the Littles became the big spenders!

Assessment

10. Direct students to the "Assessment" section at the bottom of Handout 7B.1 and instruct them to answer the question. Allow time for students to work and then review their answers.

Making Personal Finance Decisions

Handout 7B.1: Assessment—Answer Key

Based on the information in the chart, how does a high saving rate increase both your savings and spending over time? (*Those with a higher rate of saving will earn more interest. Because interest earned is income, interest contributes to both more money saved and more money available for spending over time.*)

Visual 7B.1: The Bigs versus the Littles

The Bigs					
Year	Income	Savings	Spending	Savings balance	Interest
1	$40,000	$2,000	$38,000	$2,000	$160
2	$40,160	$2,008	$38,152	$4,008	$321
3	$40,321	$2,016	$38,305	$6,024	$482
4	$40,482	$2,024	$38,458	$8,048	$644
5	$40,644	$2,032	$38,612	$10,080	$806
9	$41,298	$2,065	$39,233	$18,291	$1,463
16	$42,468	$2,123	$40,345	$32,978	$2,638
27	$44,375	$2,219	$42,156	$56,904	$4,552
35	$45,815	$2,291	$43,524	$74,976	$5,998

The Littles					
Year	Income	Savings	Spending	Savings balance	Interest
1	$40,000	$8,000	$32,000	$8,000	$640
2	$40,640	$8,128	$32,512	$16,128	$1,290
3	$41,290	$8,258	$33,032	$24,386	$1,951
4	$41,951	$8,390	$33,561	$32,776	$2,622
5	$42,622	$8,524	$34,098	$41,300	$3,304
9	$45,416	$9,083	$36,333	$76,784	$6,143
16	$50,753	$10,151	$40,602	$144,569	$11,566
27	$60,436	$12,087	$48,349	$267,538	$21,403
35	$68,619	$13,724	$54,895	$371,465	$29,717

Making Personal Finance Decisions

Handout 7B.1: Saving Rate   Name:_____

Family: _____

Saving Rate: _____%

Year	Income plus interest	Saving	Spending	Savings balance	Interest earned
1	$40,000				
2					
3					
4					
5					

Assessment

Based on the information in the chart, how does a high saving rate increase both your savings and spending over time?

Standards and Benchmarks

National Standards for Financial Literacy

Standard 3: Saving. Saving is part of income that people choose to set aside for future uses. People save for different reasons during the course of their lives. People make different choices about how they save and how much they save. Time, interest rates, and inflation affect the value of saving.

- • **Benchmarks: Grade 8**

    2. For the saver, an interest rate is the price a financial institution pays for using a saver's money and is normally expressed as an annual percentage of the amount saved.

- • **Benchmarks: Grade 12**

    1. People choose between immediate spending and saving for future consumption. Some people have a tendency to be impatient, choosing immediate spending over saving for the future.

Making Personal Finance Decisions

Lesson 8A:

Managing Risk—Time and Diversification

Rule 8: Grow your wealth safely.

Investing requires three simple steps: (i) saving a portion of your income each year to invest, (ii) letting your investments grow (avoiding withdrawals), and (iii) managing your investment risk. These lessons look at investment options, criteria for evaluating investments (using the PACED decisionmaking model), and strategies for managing investment risk.

Lesson Description

Students are introduced to investment risk—the chance of losing some or all money invested. That is, the actual rate of return on an investment may vary from the projected rate of return and may even be negative. Students investigate the trade-off between the expected rate of return on an investment and the risk. Finally, they play the role of investors in a simulation that shows how time and diversification may lower risk.

Standards and Benchmarks (see page 178)

Grade Level

9-12

Concepts

Diversification

Expected rate of return

Range

Risk

Risk averse

Compelling Question

How can investors reduce risk?

Objectives

Students will be able to

- define risk,

- evaluate risk as it applies to investment options, and

- describe ways of reducing investment risk.

Materials

- Visual 8A.1: Risk and Return

- Visual 8A.2: The Impact of Time on Risk

- Handout 8A.1: Option 1 Cards, four copies cut apart and stacked into four separate sets

- Handout 8A.2: Option 2 Cards, four copies on colored paper, cut apart, and stacked into four separate sets

- Handout 8A.3: Assessment, one copy for each student

- Handout 8A.3: Assessment—Answer Key

Time required

45 minutes

Procedure

1. Review as necessary the definition and determination of an investment's rate of return. Explain that the rate of return on an investment can vary from year to year. For example, house and commodity prices can vary, interest rates on savings accounts can vary, stock dividends can vary, and so on.

2. Define the **expected rate of return** on an investment as the weighted average of all possible rates of return, where each possibility is weighted by its chance, or probability, of occurring. Explain that if all possible rates of return the investment can earn are equally likely, then the expected rate of return is just the average of all the possible rates of return.

3.   Display *Visual 8A.1: Risk and Return*. Explain each of the investment options as follows:

   •   Investment Option A has only one possible rate of return: 6%.

   •   Investment Option B has three possible rates of return that are each equally likely: 5%, 6%, and 7%.

   •   Option C has five possible rates of return that again are equally likely: –4% (a negative rate of return), 1%, 6%, 11%, and 16%.

   •   The expected rate of return on each of these options is the same: 6%. For example, for Investment Option B, the average of the three possibilities is 6%: (5% + 6% + 7%)/3 = 18%/3 = 6%.

4.   Discuss the following:

   •   Since each of these options has the same expected rate of return, would an investor be just as satisfied with any of them? (*If an investor wants a 6 percent rate of return, it is possible that Options B and C could end up with less than that. In fact, Option C could lose money. Lead students toward the understanding that Options B and C are riskier than Option A because their rates of return could be less than 6 percent.*)

5.   Define **risk** as the chance of loss. Explain the following:

   •   Investments come with risk because the rate of return is not guaranteed.

   •   The risk of investing is that the actual rate of return can vary from its expected rate of return and even be negative—you could lose money.

   •   One simple measure of variation in risk is the range (or spread) of the possible outcomes. The **range** is the difference between the largest possible return and the smallest possible return. For example, for Option B, the range is 2% (7% – 5%).

6.   Discuss the following:

   •   What is the range for Options A and C? (*For Option A it is zero; for Option C it is 20%.*)

7.   Explain that Option A has no risk because there is only one possible outcome—therefore the range is zero. The investor is certain to earn a 6% rate of return. However, with Option C the investor could earn as much as 16% but could also lose as much as 4%. Thus, Option C is riskier—it has a larger range than Options A or B.

8.   Ask students to choose their preferred investment option on Visual 8A.1 by raising their hands. Call out each option and tally the results. (*Answers will vary. Students often select the riskier options because they tend to be greater risk-takers than the general population and because they realize it is a hypothetical situation with no real losses.*)

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9. Explain that since these options all have the same expected return, but different amounts of risk, the option an investor chooses will depend on how the investor feels about risk. Generally, investors tend to be **risk averse**, which means they would rather avoid or lower the risk of loss. Thus, most investors would choose Option A or Option B. Discuss the following:

    - Since risk-averse investors would view risk as a negative aspect of an investment, what positive aspect of an investment might offset this cost and make a risky investment more attractive? (*A higher expected rate of return*)

10. Explain the following:

    - There is often a trade-off between investment risk and the rate of return.

    - Investments with greater risk usually have higher expected rates of return. For example, as the risk a company will default on its bonds rises, it must pay higher interest rates on its bonds to induce investors to buy them.

    - Conversely, U.S. Treasury and savings bonds tend to have lower interest rates because the federal government has never defaulted on any of its obligations.

    - One way to reduce risk is to choose investments with smaller ranges, but it is important to realize that the trade-off for less risk is a lower expected rate of return.

11. Display *Visual 8A.2: The Impact of Time on Risk*. Explain that Investment Option 1 has five possible rates of return: 4%, 5%, 6%, 7%, or 8%. Investment Option 2 also has five possible rates of return: –4%, 2%, 8%, 14%, or 20%. There are several ways to reduce risk, and the next activity will explain two of them. Discuss the following:

    - Which option has the higher expected rate of return? (*Since each rate of return is equally likely, the expected rate of return for both options is determined by averaging the five rates.*

        ○ *Option 1: [4% + 5% + 6% + 7% + 8%]/5 = 30%/5 = 6%.*

        ○ *Option 2: [–4% + 2% + 8% + 14% + 20%]/5 = 40%/5 = 8%. So, the expected rate of return for Option 2 is higher.*)

    - Which option is riskier? (*The range for Option A is 4%, a low of 4% to a high of 8%, while the range for Option 2 is 24%, a low of –4% to a high of 20%. Using range as a measure of risk, Option B is riskier because it has the greater range.*)

12. Divide the class in half and designate one half as Group 1 and the other as Group 2. Divide the groups in half again (or more groups if you wish) to create Groups 1A and 1B and Groups 2A and 2B. Give Groups 1A and 1B one set of cards from *Handout 8A.1: Option 1 Cards*. Give Groups 2A and 2B one set of cards from *Handout 8A.2: Option 2 Cards*. Explain the following:

    - Groups 1A and 1B will invest in Option 1. Groups 2A and 2B will invest in Option 2.

- There will be several rounds of investing, with each round representing 1 year.

- During each round, each group will randomly draw one card from its own set of cards, which includes one card for each of the possible rates (outcomes). The chosen rate will be the rate of return the group earns for that year. After recording the result, return the card to the deck.

- Each group's rate of return will be recorded on the board as well as a running average of the rates of return over the rounds (years).

13. Begin Round 1 by having the groups each draw a card from their given set. Record the results on the board.

14. Begin Round 2—have the groups each draw another card. Record the results on the board and also record the average for each group after the two rounds. (For example, if a group from Option 1 drew 5% in Round 1 and 8% in Round 2, their average after two rounds would be (5% + 8%)/2 = 6.5%.)

15. Continue for three to six more rounds as time permits—the more rounds, the better the results of the simulation.

16. After the final round, review the average rates of return recorded on the board and ask the students to draw some conclusions. (*Two results should be evident: (i) For both options, the average rate of return for all groups should be approaching or getting closer to the expected rate of return for that option and (ii) while the average rate of return for Option 2 groups likely varied widely in the early rounds, they varied much less toward the end of the rounds as they all approached 8%.*)

17. Explain the following:

- The point of the demonstration was to show how time reduces the variability of the actual rate of return from the expected rate of return.

- The reduction in variability is also reduced risk.

- While the variability—or risk—may be great in any given year, the longer an investment is held, the lower the risk will likely be.

- Financial planners often advise young investors to invest in riskier investments with potentially higher rates of return because over time the rates of return are more likely to approach the expected rates of return.

- Conversely, over a short investment horizon (i.e., you need the money sooner rather than later), less-risky investments are a better choice.

(**Teacher note:** *Step 18 is optional.*)

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18. Explain that as the demonstration showed, time tends to lower the difference between the actual rate of return and the expected rate of return. Technically, it lowers the spread by a factor of $1/\sqrt{n}$, where n is the number of years. Thus, for Option 2, after 4 years (or rounds) the spread would only be $1/\sqrt{4} = 1/2$, or one-half of what it was after 1 year, so only 12% (24% × 1/2). Discuss the following:

    • What would the spread be for Option 2 after 9 years? (*8%; since $1/\sqrt{9} = 1/3$, the spread would be 24% × 1/3 = 8%.*)

    • What would the spread be for Option 2 after 36 years? (*4%; since $1/\sqrt{36} = 1/6$, the spread would be 24% × 1/6 = 4%.*) Note that this is exactly the same spread Option 1 has after 1 year. Thus, holding on to investment Option 2 for 36 years has the same risk as holding investment Option 1 for 1 year, *but* it will have earned a higher rate of return for those 36 years! (Remember that the expected rate of return is 6 percent for Option A and 8 percent for Option B, as explained in Step 11.)

19. Ask the class to suppose an investor has 1 year to invest and wants higher rates of return than possible from Option B but not all the risk. Another way this investor could reduce risk and still take advantage of investment options with higher rates of return is to diversify. Define **diversification** as investing in various financial instruments to reduce risk. In other words, instead of investing totally in one asset, an investor invests in several assets, for example, both Option 1 and Option 2.

20. Refer students to Visual 8A.2. Discuss the following:

    • If an investor invested half of his or her funds in Option 1 and half in Option 2, what would be the worst and best possible rates of return over 1 year? (*Worst case: 4% for Option 1 and –4% for Option 2. Best case: 8% for Option 1 and 20% for Option 2.*)

    • What is the worst case and best case for an investor who invested $50 in each option?

        ○ (*Worst case: The return would be [$50 × 4%] + [$50 × –4%] = $2 – $2 = $0, so the rate of return would be $0/100, or 0%.*

        ○ *Best case: The return would be [$50 × 8%] + [$50 × 20%] = $4 + $10 = $14, so the rate of return would be $14/$100, or 14%.*

        ○ *Thus, the range would be 14% [14% – 0%].*)

21. Explain that the range when diversifying and investing in each option is less than the range of investing in Option 2 alone, which was 20%. Thus, by diversifying, the investor is able to lower the risk. Risk could be lowered further by putting more than half of the funds in Option 1. So, an investor can control his or her risk by diversifying. However, note that by diversifying, it is not possible to get a rate of return higher than 14% (which was potentially possible with Option 2).

Closure

22. Explain the following:

- Risk refers to the chance of loss. For financial investments, risk is the degree to which the actual rate of return on an investment can vary from the expected rate of return on the investment.

- There are three ways investors can lower the amount of risk on their investments: (i) choose investments with small expected rates of return ranges, (ii) hold investments for longer periods of time, or (iii) diversify by holding several different investments.

- Each of these options comes with a cost. Choosing investments with small ranges and diversification are likely to result in lower rates of return. By holding investments for long periods, you will not be able to access your investment funds in the short run. Investors must weigh the benefits of less risk against these costs.

Assessment

23. Distribute a copy of *Handout 8A.3: Assessment* to each student and allow time for students to work (or assign as homework). Review the answers with *Handout 8A.3: Assessment—Answer Key*.

Visual 8A.1: Risk and Return

Option A

One possible rate of return: 6%

Expected rate of return: 6%

Option B

Three possible rates of return: 5%, 6%, or 7%

(All equally likely to occur)

Expected rate of return: 6%

(Average of the three rates)

Option C

Five possible rates of return: –4%, 1%, 6%, 11%, or 16%

(All equally likely to occur)

Expected rate of return: 6%

(Average of the five rates)

Visual 8.A2: The Impact of Time On Risk

Option 1

Five possible rates of return: 4%, 5%, 6%, 7%, or 8%

(All equally likely to occur)

Expected rate of return: _____

Range (risk): _____

Option 2

Five possible rates of return: –4%, 2%, 8%, 14%, or 20%

(All equally likely to occur)

Expected rate of return: _____

Range (risk): _____

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Handout 8A.1: Option 1 Cards

4%

5%

6%

7%

8%

Handout 8A.2: Option 2 Cards

−4%

2%

8%

14%

20%

Handout 8A.3: Assessment   Name:_____

1.   What is risk?

2.   Imagine you have two investment options with the noted possible rates of return:

Option 1: 2%, 3%, 4%, or 5%

Option 2: –2%, 2%, 8%, or 12%

   a.   Calculate the expected rate of return for each option.

      •   Option 1 rate of return:

      •   Option 2 rate of return:

   b.   To assess risk, calculate the range for each option, and then explain which option is riskier and why.

      •   Option 1 range:

      •   Option 2 range:

   c.   If you were presented with investment Options 1 and 2, what strategies could you use to reduce investment risk?

Handout 8A.3: Assessment—Answer Key

1. What is risk?

    Risk is the chance of loss. For a financial investor, investment risk it is the degree to which the actual rate of return on an investment can vary from the expected rate of return on the investment.

2. Imagine you have two investment options with the noted possible rates of return:

    Option 1: 2%, 3%, 4%, or 5%

    Option 2: −2%, 2%, 8%, or 12%

    a. Calculate the expected rate of return for each option.

        •   Option 1 rate of return: *3.5%*

        •   Option 2 rate of return: *5%*

    b. To assess risk, calculate the range for each option, and then explain which option is riskier and why.

        •   Option 1 range: *3%*

        •   Option 2 range: *14%*

        Option 2 is risker because it has more variation. The investor could earn as much as 12% or lose as much as 2%.

    c. If you were presented with investment Options 1 and 2, what strategies could you use to reduce investment risk?

        •   *Strategy 1: Choose Option 1 because the range is smaller.*

        •   *Strategy 2: Choose either Option 1 or Option 2 and hold the investment for a long time.*

        •   *Strategy 3: Diversify by buying both Options 1 and 2.*

Standards and Benchmarks

National Standards for Financial Literacy

Standard 5: Financial Investing. Financial investment is the purchase of financial assets to increase income or wealth in the future. Investors must choose among investments that have different risks and expected rates of return. Investments with higher expected rates of return tend to have greater risk. Diversification of investment among a number of choices can lower investment risk.

- • Benchmark: Grade 8

  5. The rate of return on financial investments consists of interest payments, dividends, and capital appreciation expressed as a percentage of the amount invested.

  6. Financial risk means that a financial investment has a range of possible returns, including possibilities of actual losses. Higher-risk investments have a wider range of possible returns.

  7. The rate of return earned from investments will vary according to the amount of risk. In general, a trade-off exists between the security of an investment and its expected rate of return.

- • Benchmark: Grade 12

  5. An investment with greater risk than another investment will commonly have a lower market price, and therefore a higher rate of return, than the other investment.

  7. Diversification by investing in different types of financial assets can lower investment risk.

Lesson 8B:

Evaluating Investment Options

Rule 8: Grow your wealth safely.

Investing requires three simple steps: (i) saving a portion of your income each year to invest, (ii) letting your investments grow (avoiding withdrawals), and (iii) managing your investment risk. These lessons look at investment options, criteria for evaluating investments (using the PACED decisionmaking model), and strategies for managing investment risk.

Lesson Description

Students use the PACED decisionmaking model to investigate the trade-offs involved in choosing an investment.

Standards and Benchmarks (see page 188)

Grade Level

9-12

Concepts

Costs (related to investment options)

Liquidity

PACED decisionmaking model

Rate of return

Risk

Compelling Question

How do people choose among investment options?

Making Personal Finance Decisions

Objectives

Students will be able to

- identify and describe criteria that would be important in choosing investments and
- use the PACED decisionmaking model and grid to choose investments.

Materials

- Visual 8B.1: PACED Decisionmaking Model for Choosing Investments
- Visual 8B.1: PACED Decisionmaking Model for Choosing Investments—Answer Key
- Handout 8B.1: Evaluating an Investment Alternative, one copy for each student
- (optional) Handout 8B.2: Investment Alternatives, one copy for each student
- Handout 8B.3: Assessment, one copy for each student

Time Required

Several class periods

Procedure

1. Review the **PACED decisionmaking model** as necessary (see Lesson 1B). Remind students of the five basic steps: (1) Define the **p**roblem. (2) List the **a**lternatives. (3) Determine the **c**riteria. (4) **E**valuate the alternatives. (5) Make a **d**ecision. Discuss the following:

    - Once people have saved part of their income, what is the next question or problem they will likely need to address? (*Answers will vary, but lead students to realize that choosing investment options should be considered.*)

    - Using the PACED decisionmaking model, for Step 1, the defined problem is how to invest income.

    - What is Step 2? (*List the alternatives.*)

    - What are some investment alternatives? (List alternatives on the board.) (*Answers will vary. See the alternatives listed on* Visual 8B.1: PACED Decisionmaking Model for Choosing Investments *and note those students miss. Briefly describe each alternative as needed; however, students will be asked to research these more fully below.*)

    - Step 3 is to determine the criteria. Criteria are factors that could be used to rank one alternative as being "better" than another. What criteria do people find important for choosing investments? (List the criteria on the board.) (*Answers will vary but will likely include the rate of return and amount of risk.*)

2. From the list below, add to the list on the board criteria students may have missed. Define each one as follows:

    • **Rate of return** is the return on an asset over a given period divided by the market value (the price it can be sold for in a market) of the asset at the beginning of that period. This ratio is typically multiplied by 100 and expressed as a percentage. (See Lesson 2B for more about the rate of return.)

    • **Risk** is the chance of loss. For an investment, the risk is that the actual rate of return may vary from the expected rate of return. (See Lesson 8A for more about risk.).

    • **Liquidity** is the quality that makes an asset easily converted into cash with little loss of value in the conversion process—that is, how easy is it to liquidate the investment. For example, money in savings can easily be withdrawn for spending, but a house takes time to convert into cash—you need to find a buyer and complete the paperwork before the deal is closed and a check is received.

    • **Costs** are charges, fees, or other expenses associated with buying, selling, or holding an investment. For example, such costs include account maintenance fees, broker charges for buying and selling stocks, closing costs for buying or selling a house, minimum balance requirements, and mutual fund management fees, and so on.

3. Display *Visual 8B.1: PACED Decisionmaking Model for Choosing Investments*. Explain that the grid lists alternatives down the left side and criteria across the top line. Remind the class that Step 4 of the PACED model is evaluating the alternatives. Each cell of the grid needs to be filled in with an evaluation of how well each alternative meets each criterion.

4. Distribute a copy of *Handout 8B.1: Evaluating an Investment Alternative* to each student. (Optional: Also distribute a copy of *Handout 8B.2: Investment Alternatives* to each student.) Form 15 groups of students and assign each group one of the 15 alternatives listed on Visual 8B.1. Explain the following and then allow students time to complete the assignment (one class period; roughly 40 minutes, should be sufficient):

    • Each group is to research and evaluate its assigned investment alternative according to the four criteria given on Handout 8B.1 so that the findings will be comparable: rate of return, risk, liquidity, and costs.

5. Have groups report their results and rationale, discuss any differences, and fill in the cells on Visual 8B.1. (See Visual 8B.1—Answer Key for a sample of how the grid may be filled out.) NOTE: The information on the Answer Key is dated and subjective, so students will not have the exact values shown. What is important is that they provide a reasonable rationale for their evaluation.

6. Point out that the class is now at Step 5 in the PACED decisionmaking model—make a decision. Discuss the following:

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- Given the information shown on Visual 8B.1, which alternative is the "best" choice? (*Students should recognize that the best choice depends on which of the criteria are most important to the person choosing. For example, if the person is uncomfortable with risk, they would not want to choose alternatives with high risk. On the other hand, a person interested only in a high rate of return would likely choose one of the more risky alternatives.*)

- Why might an investor wish to choose more than one investment alternative? (*The investor may have multiple needs: They may want high liquidity to meet short-term goals, a high rate of return to meet long-term goals, or to lower risk through diversification.*)

Closure

7. Explain that most financial planners will ask their clients questions about how they feel about various criteria to help them select the investment(s) that best suits their desires and needs. They basically apply the PACED decisionmaking model or a similar model.

Assessment

8. Distribute a copy of *Handout 8B.3: Assessment* to each student and allow time for students to work (or assign as homework).

Handout 8B.3—Answer Key

Directions: Use the PACED decisionmaking model to select an investment for each of the investors below. For each investor, explain which of the four criteria (rate of return, risk, liquidity, and costs) were the most important factors in choosing those investments.

1. Investor 1 is young with lots of time until retirement and is not afraid to take on risk.

    Answers will vary. Responses should emphasize that Investor 1 has the time to take on additional risk. As such, Investor 1 should likely pursue relatively riskier investments with a higher rate of return, such as corporate bonds, income stocks, growth stocks, real estate, commodities, collectibles, or mutual funds.

2. Investor 2 hopes to retire in three to five years and has a high level of anxiety about fluctuating investment values.

    Answers will vary. Responses should emphasize that Investor 2 has a short horizon for investing and is risk averse. As a result, Investor 2 should likely pursue investments with low risk and higher liquidity, such as certificates of deposit, U.S. savings bonds and Treasury bonds, and money market mutual funds.

Visual 8B.1: PACED Decisionmaking Model for Choosing Investments

Investment alternatives	Criteria			
	Rate of return	Risk	Liquidity	Costs
Cash				
Checking accounts				
Savings accounts				
Money market deposit accounts				
Certificates of deposit				
U.S. savings bonds				
Money market mutual funds				
U.S. Treasury bonds				
Corporate bonds				
Income stocks				
Growth stocks				
Real estate				
Commodities				
Collectibles				
Mutual funds				

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Visual 8B.1: PACED Decisionmaking Model for Choosing Investments— Answer Key

Investment Alternatives	Criteria*						
	Rate of return**		Risk		Liquidity	Costs	
Cash	1	0%	2	Theft, inflation	5	1	None
Checking accounts	1	0-0.25%	1	Insured, inflation	5	1	Fees
Savings accounts	2	0.25-1%	1	Insured, inflation	4	1	Maintenance fees
Money market deposit accounts	2	2.5-3.5%	1	Insured, inflation	4	2	Minimum balance required
Certificates of deposit	3	4-5%	1	Insured	3	2	Transaction, access fees
U.S. savings bonds	3	2-4%	1	Government guaranteed***	3	2	Transaction, access fees
Money market mutual funds	3	4.5-5%	2	Not insured	3	2	Transaction, other fees
U.S. Treasury bonds	3	3.5-5.5%	1	Government guaranteed***	3	3	Transaction, access fees
Corporate bonds	3-4	6-10%	2-4	Company rating	3	3	Broker, transaction fees
Income stocks	4	9-11%	3-4	Company rating/market	3	3	Broker, transaction fees
Growth stocks	4-5	12-15%	4-5	Company rating /market	3	3	Broker, transaction fees
Real estate	4-5	Varies	3-4	Market	2	4	Agent, transaction fees
Commodities	4	Varies	4-5	Market	3	3	Broker, transaction fees
Collectibles	1-5	Varies	4-5	Market	1	4	Transaction fees
Mutual funds	2-4	Varies	2-4	Mix dependent	3	3-5	Management fees

NOTE: *1 = Very low, 2 = Low, 3 = Medium, 4 = High, 5 = Very high. **Historical data. *** U.S. savings bonds, Treasury notes, and bonds are backed by the full faith and credit of the U.S. government.

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Handout 8B.1: Evaluating an Investment Alternative

Name:_____

Investment alternative: _____

Directions: Using the information on Visual 8B.1, evaluate your assigned investment alternative according to the four criteria below (rate of return, risk, liquidity, and costs).

Criteria

_____   **Rate of return:** Find the current rate of return or expected range of rates of return for your investment alternative.

_____   **Risk:** Rate the risk of this investment on a scale from 1 (virtually no risk) to 5 (very high degree of risk). What are the risks of this investment? Risk can come from many sources: market fluctuations that affect the market value of the investment, funds that are not insured, bankruptcy of companies, default by borrowers, inflation, theft, fraud, and so on.

_____   **Liquidity:** Rate the liquidity of this investment on a scale from 1 (low—very difficult to convert into cash) to 5 (very high—very easy to convert into cash). Consider how difficult, costly, or time-consuming it would be to sell the investment to turn it into cash.

_____   **Costs:** Rate the cost of this investment on a scale from 1 (no or very low costs) to 5 (very high costs). Consider all fees, charges, or other expenses associated with buying, selling, or holding the investment (such as maintenance fees, broker charges, transactions fees, minimum balance requirements, and so on). Notice that these costs do not include the price of the actual financial asset.

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Handout 8B.2: Investment Alternatives

Cash is accepted as payment for all debts both public and private. There are no costs associated with holding cash, but there is also no return and its value diminishes due to inflation. It may seem that holding cash has no risk; however, cash is vulnerable to loss or theft.

Checking accounts, which may be held at a bank or credit union, allows the account owner to deposit and withdraw funds. Account owners have the privilege of writing checks on their accounts and using ATM cards and debit cards to access funds. Accounts in FDIC (Federal Deposit Insurance Corporation) member banks are insured up to $250,000. Your principal will always be available to you, but you will receive little or no return.

Savings accounts are accounts with a bank or credit union in which people can deposit their money for future use and earn interest. Accounts in FDIC member banks are insured up to $250,000. You will never lose your principal, but your return will be relatively small.

Money market deposit accounts are offered through banks and operate like a savings account but with a higher minimum investment. They are usually FDIC insured up to $250,000 and offer limited check-writing privileges, so your money is fairly accessible.

Certificates of deposit (CDs) are a saving alternative in which money is left on deposit for a stated period of time to earn a specific interest rate. They are very safe and offer a greater return than a savings accounts, but access carries a penalty if money is withdrawn before the specified time.

U.S. savings bonds are debt securities issued by the U.S. government. Buying a bond is essentially the same as lending money to the U.S. government. You can purchase a bond for as little as $25. Bonds are backed by the full faith and credit of the U.S. government, making them one of the safest investments.

Money market mutual funds are an investment product offered by non-bank institutions such as mutual funds companies. They are not FDIC insured, although they tend to buy relatively safe investments such as short-term government bonds and corporate bonds. The funds offer limited check-writing privileges, so your money is fairly accessible.

U.S. Treasury bonds are backed by the full faith and credit of the U.S. government. You will not lose your principal; there is no chance of default. The return is usually greater than from savings accounts or certificates of deposit. When you buy a U.S. Treasury bond, you are lending your money to the U.S. government.

Corporate bonds are not insured. They are debt issued by corporations. If a company wants to borrow money to finance a project, it might borrow from the public by issuing a bond. The return on a corporate bond will be greater than on a government bond because there is a risk of default.

Stocks are part ownership in a company. Some stocks are riskier than others. Generally, the lower the price, the higher the risk. Potential returns on stocks are greater than those from bonds or insured savings to account for the greater risk.

- **Income stocks** are shares in what investors consider to be very stable and profitable companies, and they usually pay dividends (which provides income to the investor).

- **Growth stocks** are shares in companies that might be smaller, younger companies, but have the potential to grow much larger in the future. These stocks are less likely to pay dividends (because they often reinvest profits for growth). While growth stocks have the potential for faster growth, they are considered to be more risky than income stocks.

Real estate is residential or commercial property. The recent housing bubble illustrated the risk in real estate. For those who sold before the bubble burst, the returns were quite high.

Commodities, such as gold and silver, are speculative. In general, their values grow in times of economic uncertainty but returns are relatively low during steady economic times.

Collectibles vary greatly in value and popularity as do their potential for risk and return. Some art, coins, and stamps may increase in value and provide a return, while others collectibles, for example, Beanie Babies, may not.

Mutual funds are collections of financial assets such as stocks and/or bonds that provide a means of diversification. Some funds are more risky than others because they have a more uncertain future value. Returns on mutual funds vary based on the financial assets held by the fund. Mutual fund companies charge investors fees to manage the portfolio of investments, and these fees can vary widely based on the fund

Handout 8B.3: Assessment   Name:_____

Directions: Use the PACED decisionmaking model to select an investment for each of the investors below. For each investor, explain which of the four criteria (rate of return, risk, liquidity, and costs) were the most important factors in choosing those investments.

1. Investor 1 is young with lots of time until retirement and not afraid to take on risk.

2. Investor 2 hopes to retire in three to five years and has a high level of anxiety about fluctuating investment values.

Making Personal Finance Decisions

Standards and Benchmarks

National Standards for Financial Literacy

Standard 5: Financial Investing. Financial investment is the purchase of financial assets to increase income or wealth in the future. Investors must choose among investments that have different risks and expected rates of return. Investments with higher expected rates of return tend to have greater risk. Diversification of investment among a number of choices can lower investment risk.

- • Benchmark: Grade 8

    5. The rate of return on financial investments consists of interest payments, dividends, and capital appreciation expressed as a percentage of the amount invested.

    6. Financial risk means that a financial investment has a range of possible returns, including possibilities of actual losses. Higher-risk investments have a wider range of possible returns.

    7. The rate of return earned from investments will vary according to the amount of risk. In general, a trade-off exists between the security of an investment and its expected rate of return.

- • Benchmark: Grade 12

    5. An investment with greater risk than another investment will commonly have a lower market price, and therefore a higher rate of return, than the other investment.

    7. Diversification by investing in different types of financial assets can lower investment risk.

    11. People vary in their willingness to take risks. The willingness to take risks depends on factors such as personality, income, and family situation.

Lesson 9A:

The Three C's of Credit

Rule 9: Pay on time and in full.

While borrowing has both benefits and costs, at times it is an indication that something has gone wrong with your financial planning (spending too much and/or saving too little relative to your income). These lessons look at borrowing from both the lender's and the borrower's perspectives and discuss why it is wise to use credit sparingly and manage the use of credit.

Lesson Description

Students play the role of credit providers and assess the creditworthiness of an individual with a loan request and randomly selected borrower characteristics. Students classify those characteristics based on the three C's of credit (capacity, character, and collateral), assess the riskiness of lending to that individual based on these characteristics, and then decide whether or not to approve or deny the loan request.

Standards and Benchmarks (see page 211)

Grade Level

9-12

Concepts

Credit score

Three C's of credit:

Capacity

Character

Collateral

Compelling Question

How do lenders evaluate the risk when making loans?

Objectives

Students will be able to

- describe the "three C's of credit" (capacity, character, and collateral) and factors used to measure or assess them;

- evaluate the riskiness of lending to an individual based on capacity, character, and collateral; and

- weigh the benefits and costs of approving a loan and make a decision to approve or deny the loan; and

- define credit score.

Materials

- Visual 9A.1: The Three C's of Credit

- Handout 9A.1: Individual Characteristic Cards, with each page cut apart and placed into an envelope labeled with the given category (There are 11 categories.)

- Handout 9A.2: Loan Request Cards, two copies cut into cards and placed into an envelope labeled "Loan Requests"

- Handout 9A.3: Approve or Deny Credit?, one copy for each student

- Handout 9A.4: Assessment, one copy for each student

- 12 Standard envelopes (to use as noted above)

Time Required

45 minutes

Preparation

Place the 11 envelopes with the Individual Characteristic Cards at stations around the room (see Step 7 below).

(**Teacher note:** *Having multiple stations around the room will help speed up this step by reducing classroom congestion. For example, for a class of 30 there would be three students per group. In this case, it would be helpful to set up three stations with four envelopes each. So, three students from each group would go to one stations to select cards. So, each member of a group would select four cards per station and then return to his or her seat.*)

Procedure

1. Explain to the students that they will be playing the role of lenders and deciding to approve or deny individual loan requests. Discuss the following:

    •   What are some examples of credit or loan providers? (*Answers will vary but may include banks, credit unions, car dealers, credit-card companies, or department stores.*)

    •   What are some things people often use credit or a loan to purchase? (*Answers will vary but may include a house, car, an education, medical expenses, or new electronics.*)

2. Explain that lenders expect all the money they lend to be fully repaid with interest. Thus, when deciding whether to make a loan or offer credit, lenders want to know the likelihood that the individual will repay the money. Discuss the following:

    •   What information about a person would you want to know before lending that person money? (*Answers will vary. See* Visual 9A.1: The Three C's of Credit *for a list.*)

3. Display Visual 9A.1. Explain that the visual shows the three questions lenders generally want answered before granting a loan. They are known as the **"Three C's of Credit": Capacity, Character, and Collateral**:

    (1)   Capacity: What is the individual's *ability* to repay the loan?

    (2)   Character: What is the individual's *reliability* to repay the loan?

    (3)   Collateral: What *assets* does the individual own that could be sold to repay the loan?

4. Review the factors for each C and then explain the following:

    •   Each factor attempts to provide a measure to help answer each question.

    •   The results vary from person to person, with a wide range of possibilities.

    Capacity

    •   The amount of debt a borrower has relative to his or her income is an indication of "capacity," that is, that person's ability to repay debt.

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- For example, an individual with debt payments that are a large percentage of his or her monthly income would be less able to take on more debt than someone with debt payments that are a smaller percentage of his or her income.

Character

- A **credit score** is an indication of "character" because it indicates a person's reputation for paying bills and debts based on past behavior.

- A credit score is a number based on information in a credit report, which indicates a person's credit risk.

- Credit scores are often called FICO scores. FICO is an abbreviation for Fair Isaacs Company—the first company to develop credit scores.

- Credit scores generally range from 350 to 850, with 350 indicating low reliability and 850 indicating high reliability.

- A low credit score indicates that a person has not been responsible with credit in the past.

Collateral

- Collateral is property required by a lender and offered by a borrower as a guarantee of payment on a loan. Also, a borrower's savings, investments, or the value of the asset purchased that can be seized if the borrower fails to repay a debt.

- For example, a borrower who owns many other assets such as stocks, bonds, or real estate would be able to sell some of those assets to repay a loan if necessary. As such, lenders will see the loan as less risky than a loan to someone with few or no assets.

- How might the three C's affect each other? (*Having a favorable rating on one C may help you have favorable ratings on others; for example, capacity may make collateral more likely.*)

5. Tell the class that they will now use this type of background information to make some lending decisions.

6. Divide the class into 10 groups as evenly as possible (it is not necessary for the groups to be of equal size).

7. Have each group randomly select one card from each of the 11 Individual Characteristic envelopes placed around the room at 11 stations. The groups must decide which group members will go to each station so that only one card is taken from each envelope.

8. After all groups have selected their 11 Individual Characteristic cards, have one member of each group come to the front of the room and randomly select a card from the Loan Requests envelope held by the teacher.

9. Instruct the groups to spread out their cards.

10. Distribute a copy of *Handout 9A.3: Approve or Deny Credit?* to each student. Instruct the groups to complete Part A of Handout 9A.3. Allow time for students to complete the activity and then review the answers.

Handout 9A.3: Approve or Deny Credit?—Part A Answer Key

Capacity
> *Annual Household Income*
> *Years Working for Current Employer*
> *Education*
> *Monthly Debt Payments as a % of Monthly Income*

Character
> *FICO Score*
> *Years Living at Current Address*
> *Length of Credit History*

Collateral
> *Short-Term Financial Assets*
> *Long-Term Financial Assets*
> *Equity in Home*
> *Market Value of Other Real Assets*

11. Instruct the students to individually complete Part B of Handout 9A.3. After a few minutes, instruct the groups to compare their answers, discuss any differences, and come to an agreement on the rating given for each of the three C's.

Handout 9A.3: Approve or Deny Credit?—Part B Answer Key

Each individual characteristic has five levels of risk that decrease from the top to bottom rows of the original, uncut Handout 9A.1 as follows: high risk, high-medium risk, medium risk, medium-low risk, and low risk. Handout 9A.1, however, offers only three options: low, medium, and high. To get an overall rating for each individual characteristic, students should think about how they would rate each of the four individual characteristics that make up the given "C" and how important they believe each characteristic is relative to the others in that category.

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12. Instruct the groups to discuss and complete Part C of Handout 9A.3.

    (**Teacher note:** *Should a group ask for more information about the individual such as age, character references, past loans, and so on, explain that although lenders would value such information, it is not possible to get complete information for everyone, so they have to work with the information they have.*)

    ### Handout 9A.3: Approve or Deny Credit?—Part C Answer Key

    It is unlikely that all three of a group's C's are "low risk" or "high risk," which would make the decision fairly easy. Instead, groups will be faced with a mix of risk levels and will have to weigh lower risk factors against higher risk factors. They should also consider the size and nature of the loan: Lending $2,000 is very different from lending $150,000.

13. Invite groups to report their loan request and whether they approved or denied the loan and why.

    (**Teacher note:** *Consider using the video "Understanding How a FICO Credit Score Is Determined" as a follow-up. It provides an overview of credit reports and credit scores in less than six minutes;* https://www.stlouisfed.org/education/continuing-feducation-video-series/episode-1-understanding-how-a-fico-credit-score-is-determined*.*)

Closure

14. Discuss the following:

    - What have you learned that may help you get a loan or credit some day? (*Answers will vary, but students should recognize that they are in control of their own individual characteristics: The lower their risk levels, the easier it will be for them to get a loan or credit.*)

Assessment

15. Distribute a copy of *Handout 9A.4: Assessment* to each student and allow time for students to work (or assign as homework).

    ### Handout 9A.4: Assessment—Answer Key

    1. Given an individual with the characteristics above, evaluate how likely it is that this person will repay the loan in each of the three categories. Give a rating of "low risk," "medium risk," or "high risk."

       Capacity: *Low risk*

       Character: *High risk*

       Collateral: *High risk*

2. Which factors support *approving* this individual's loan request?

    This person has a relatively high income, has been at her current job for an acceptable period of time (6 years), has a college degree, and has a low percentage of debt payments relative to income (10%).

3. Which factors support *denying* this individual's loan request?

    This person has a low credit score, has lived at her current address for a short period of time, has one felony, and has very little collateral.

4. Would you approve or deny this individual's loan request?

    Approve / Deny (Circle one.) Explain your decision.

    Students should deny this loan request. Although the person scores well on capacity, she lacks character and collateral.

Visual 9A.1: The Three C's of Credit

Capacity

What is the individual's *ability* to repay the loan?

Factors include the following:

- Amount and sources of income

- Steadiness of income (e.g., years with same employer and/or stable dividend income)

- Amount of monthly living expenses (including debt, alimony, or child-support payments)

- Number of dependents

- Level of education and training

Character

What is the individual's *reliability* to repay the loan?

Factors include the following:

- Credit score (which measures an individual's credit risk based on his or her bill-payment history, length of using credit, and credit balances as a percent of his or her credit limits and other measures)

- Years living at the same address

Collateral

What *assets* does the individual own that could be sold to repay the loan?

Factors:

- Amount of financial assets (e.g., savings, stock and bond holdings, and/or a 401(k) account balance)

- Market value of real assets (e.g., land, home(s), car(s), boat(s), electronics, jewelry, antiques, and/or precious metals)

Handout 9A.1: Individual Characteristic Cards (page 1 of 11)

Annual Household Income **Wages/salary:** $15,000 **Other:** $0	**Annual Household Income** **Wages/salary:** $15,000 **Other:** $0
Annual Household Income **Wages/salary:** $30,000 **Other:** $200 interest	**Annual Household Income** **Wages/salary:** $30,000 **Other:** $200 interest
Annual Household Income **Wages/salary:** $50,000 **Other:** $3,000 rental income	**Annual Household Income** **Wages/salary:** $50,000 **Other:** $3,000 rental income
Annual Household Income **Wages/salary:** $85,000 **Other:** $7,000 alimony	**Annual Household Income** **Wages/salary:** $85,000 **Other:** $7,000 alimony
Annual Household Income **Wages/salary:** $125,000 **Other:** $20,000 dividends	**Annual Household Income** **Wages/salary:** $125,000 **Other:** $20,000 dividends

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Handout 9A.1: Individual Characteristic Cards (page 2 of 11)

Years Working for Current Employer 0.5 years (6 months)	**Years Working for Current Employer** 0.5 years (6 months)
Years Working for Current Employer 2 years	**Years Working for Current Employer** 2 years
Years Working for Current Employer 4 years	**Years Working for Current Employer** 4 years
Years Working for Current Employer 8 years	**Years Working for Current Employer** 8 years
Years Working for Current Employer 15 years	**Years Working for Current Employer** 15 years

Handout 9A.1: Individual Characteristic Cards (page 3 of 11)

Education	**Education**
No high school diploma	No high school diploma
Education	**Education**
High school graduate	High school graduate
Education	**Education**
Some college or vocational training	Some college or vocational training
Education	**Education**
College graduate or occupation licensure	College graduate or occupation licensure
Education	**Education**
Professional degree (MBA, PhD, CPA, MD, etc.)	Professional degree (MBA, PhD, CPA, MD, etc.)

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Handout 9A.1: Individual Characteristic Cards (page 4 of 11)

Monthly Debt Payments (as a % of monthly income) 70%	**Monthly Debt Payments (as a % of monthly income)** 70%
Monthly Debt Payments (as a % of monthly income) 50%	**Monthly Debt Payments (as a % of monthly income)** 50%
Monthly Debt Payments (as a % of monthly income) 30%	**Monthly Debt Payments (as a % of monthly income)** 30%
Monthly Debt Payments (as a % of monthly income) 20%	**Monthly Debt Payments (as a % of monthly income)** 20%
Monthly Debt Payments (as a % of monthly income) 0%	**Monthly Debt Payments (as a % of monthly income)** 0%

Handout 9A.1: Individual Characteristic Cards (page 5 of 11)

FICO Score 450	**FICO Score** 450
FICO Score 550	**FICO Score** 550
FICO Score 650	**FICO Score** 650
FICO Score 750	**FICO Score** 750
FICO Score 800	**FICO Score** 800

Making Personal Finance Decisions

Handout 9A.1: Individual Characteristic Cards (page 6 of 11)

Years Living at Current Address 0.5 years (6 months)	**Years Living at Current Address** 0.5 years (6 months)
Years Living at Current Address 2 years	**Years Living at Current Address** 2 years
Years Living at Current Address 4 years	**Years Living at Current Address** 4 years
Years Living at Current Address 8 years	**Years Living at Current Address** 8 years
Years Living at Current Address 15 years	**Years Living at Current Address** 15 years

Handout 9A.1: Individual Characteristic Cards (page 7 of 11)

Length of Credit History No credit history	**Length of Credit History** No credit history
Length of Credit History 1 year using a store credit card	**Length of Credit History** 1 year using a store credit card
Length of Credit History 3 years using a major credit card	**Length of Credit History** 3 years using a major credit card
Length of Credit History 6 years using a major credit card and paying a car loan	**Length of Credit History** 6 years using a major credit card and paying a car loan
Length of Credit History 12 years using a major credit card and paying a mortgage	**Length of Credit History** 12 years using a major credit card and paying a mortgage

Making Personal Finance Decisions

Handout 9A.1: Individual Characteristic Cards (page 8 of 11)

Short-Term Financial Assets $0	**Short-Term Financial Assets** $0
Short-Term Financial Assets $250 in checking account	**Short-Term Financial Assets** $250 in checking account
Short-Term Financial Assets $1,000 in savings account	**Short-Term Financial Assets** $1,000 in savings account
Short-Term Financial Assets $5,000 in money market deposit account	**Short-Term Financial Assets** $5,000 in money market deposit account
Short-Term Financial Assets $10,000 in 1-year certificate of deposit	**Short-Term Financial Assets** $10,000 in 1-year certificate of deposit

Handout 9A.1: Individual Characteristic Cards (page 9 of 11)

Long-Term Financial Assets $0	**Long-Term Financial Assets** $0
Long-Term Financial Assets $5,000 in savings account	**Long-Term Financial Assets** $5,000 in savings account
Long-Term Financial Assets $10,000 in U.S. Treasury bonds	**Long-Term Financial Assets** $10,000 in U.S. Treasury bonds
Long-Term Financial Assets $50,000 in an IRA	**Long-Term Financial Assets** $50,000 in an IRA
Long-Term Financial Assets $150,000 in a 401(k) account	**Long-Term Financial Assets** $150,000 in a 401(k) account

Making Personal Finance Decisions

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Handout 9A.1: Individual Characteristic Cards (page 10 of 11)

Equity in Home	**Equity in Home**
−$20,000 (mortgage balance > value in home)	−$20,000 (mortgage balance > value in home)
Equity in Home	**Equity in Home**
None (renter)	None (renter)
Equity in Home	**Equity in Home**
$20,000	$20,000
Equity in Home	**Equity in Home**
$50,000	$50,000
Equity in Home	**Equity in Home**
$100,000	$100,000

Handout 9A.1: Individual Characteristic Cards (page 11 of 11)

Market Value of Other Real Assets Old furniture and appliances: $500	**Market Value of Other Real Assets** Old furniture and appliances: $500
Market Value of Other Real Assets Old car: $4,000	**Market Value of Other Real Assets** Old car: $4,000
Market Value of Other Real Assets Car and electronics: $10,000	**Market Value of Other Real Assets** Car and electronics: $10,000
Market Value of Other Real Assets Car, boat, and jewelry: $25,000	**Market Value of Other Real Assets** Car, boat, and jewelry: $25,000
Market Value of Other Real Assets Car, gold coins, and 10 acres of land: $50,000	**Market Value of Other Real Assets** Car, gold coins, and 10 acres of land: $50,000

Making Personal Finance Decisions

Handout 9A.2: Loan Request Cards

Loan Request $2,000 for a laptop computer	**Loan Request** $6,000 for a Caribbean vacation
Loan Request $10,000 credit limit on a new credit card	**Loan Request** $15,000 for 1 year of college in-state tuition
Loan Request $35,000 for home renovation	**Loan Request** $35,000 for a motored fishing boat
Loan Request $40,000 for a new SUV	**Loan Request** $50,000 for medical expenses
Loan Request $125,000 to start a new business	**Loan Request** $240,000 for a house

Handout 9A.3: Approve or Deny Credit?

Name:_____

Part A

1. Record the loan amount requested: _____

2. Record the information from each Individual Characteristic card in the appropriate category below. (Hint: There should be an item listed on each line.)

    Capacity: _____

    _____

    _____

    _____

    Character: _____

    _____

    _____

    Collateral: _____

    _____

    _____

    _____

Part B

3. Given an individual with the characteristics above, for each category and using the following scale, rate the risk of this individual not repaying the loan as low risk, medium risk, or high risk.

    Capacity: _____

    Character: _____

    Collateral: _____

Part C

4. Which factors support *approving* this individual's loan request?

5. Which factors support *denying* this individual's loan request?

6. Would you approve or deny this individual's loan request?   **Approve   Deny**
    Explain your decision.   (circle one)

Handout 9A.4: Assessment Name:_____

Directions: Use the information below to assess the capacity, character, and collateral of a potential borrower and then answer the questions.

Loan Request: $60,000 for a new sport utility vehicle (SUV)

Capacity

Annual household income: $80,000

Years working for current employer: 6 years

Education: College graduate

Monthly debt payments: 10% of monthly income

Character

FICO score: 400

Years living at current address: 2 months

Length of credit history: 6 years using a major credit card

Collateral

Short-term financial assets: $200 in checking account

Long-term financial assets: $1,000 in savings account

Equity in home: None (renter)

Market value of other real assets: Old car ($3,000)

1. Given an individual with the characteristics above, evaluate how likely it is that this person will repay the loan in each of the three categories. Give a rating of "low risk," "medium risk," or "high risk."

    Capacity: _____

    Character: _____

    Collateral: _____

2. Which factors support *approving* this individual's loan request?

3. Which factors support *denying* this individual's loan request?

4. Would you approve or deny this person's loan request?   **Approve   Deny**
    Explain your decision.   (circle one)

Standards and Benchmarks

National Standards for Financial Literacy

Standard 4: Using Credit. Credit allows people to purchase goods and services that they can use today and pay for those goods and services in the future with interest. People choose among different credit options that have different costs. Lenders approve or deny applications for loans based on an evaluation of the borrower's past credit history and expected ability to pay in the future. Higher-risk borrowers are charged higher interest rates; lower-risk borrowers are charged lower interest rates.

- **Benchmarks: Grade 4**

    4. Borrowers who repay loans as promised show that they are worthy of getting credit in the future. A reputation for not repaying a loan as promised can result in higher interest charges on future loans, if loans are available at all.

- **Benchmarks: Grade 12**

    3. Loans can be unsecured or secured with collateral. Collateral is a piece of property that can be sold by the lender to recover all or part of a loan if the borrower fails to repay. Because secured loans are viewed as having less risk, lenders charge a lower interest rate than they charge for unsecured loans.

    5. Lenders make credit decisions based in part on consumer payment history. Credit bureaus record borrowers' credit and payment histories and provide that information to lenders in credit reports.

    6. Lenders can pay to receive a borrower's credit score from a credit bureau. A credit score is a number based on information in a credit report and assesses a person's credit risk.

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Lesson 9B:

Evaluating the Benefits and Costs of Credit

Rule 9: Pay on time and in full.

While borrowing has both benefits and costs, at times it is an indication that something has gone wrong with your financial planning (spending too much and/or saving too little relative to your income). These lessons look at borrowing from both the lender's and the borrower's perspectives and discuss why it is wise to use credit sparingly and manage the use of credit.

Lesson Description

Students are introduced to different types of credit and discuss some of the benefits and costs of credit. They then consider how borrowing affects a person's net worth.

Standards and Benchmarks (see page 223)

Grade Level

9-12

Concepts

Assets

Borrow

Credit

Interest

Liabilities

Net worth

Compelling Question

How does using credit affect net worth?

Objectives

Students will be able to

- describe various types of loans or credit,

- describe some of the benefits and costs of credit, and

- determine how credit decisions are likely to impact their net worth over time.

Materials

- Visual 9B.1: Types of Credit

- Handout 9B.1: Are These Goods Worth Buying With Credit?, one copy for each student and one for the teacher to use as a visual

- Handout 9B.1: Are These Goods Worth Buying With Credit?—Answer Key

- Handout 9B.2: Assessment, one copy for each student

Time

45 minutes

Procedure

1. Begin the lesson by asking the following:

    - If you borrow a video game from a friend, what does that friend likely expect? (*Answers will vary, but students may say something like the friend will let them use it for a certain period and expect them to return it.*)

2. Explain the following:

    - When you borrow money, there are expectations similar to borrowing something from a friend, but the process is typically more formal and costly.

    - When you **borrow** money, you take it with the promise to repay it, usually with interest, in the future.

    - For example, for formal loans from a financial institution, your promise takes the form of a contract that lays out the terms of the loan.

    - **Interest** is the price of using someone else's money. That is, it is an additional payment of money for the right to use someone else's money.

    - **Credit** is the granting or money (or something else of value) in exchange for a promise of future repayment.

    - You have credit when an institution approves an amount that you can borrow

from them. For example, a credit card company may extend you credit by providing you a credit card with a limit up to $1,000. You can then use that card to borrow up to $1,000 at any time. If you pay your credit card balance in full each month, you pay no interest. However, if you don't pay the balance in full each month, you pay interest and perhaps fees.

3.   Display *Visual 9B.1: Types of Credit* and review the different types. Discuss the following:

   •   What are some benefits of borrowing money (or using credit)? (*Answers will vary but may include the following: getting goods and services now instead of later, paying for emergency expenses, enjoying payment convenience, getting in on a deal that may not be available later, acquiring assets that will increase your net worth over time, building a credit record/history, it is less costly than using invested funds, and so on.*)

   •   What are some costs of borrowing money (or using credit)? (*Answers will vary but may include the following: finance charges [interest plus any fees], creating debt and lowering your net worth, having less money to purchase goods and services in the future, having less credit available in case of an emergency, having greater exposure to identity theft, and so on.*)

4.   Explain that all these benefits and costs should be considered when deciding whether to use credit. The remainder of the lesson will focus on the impact of credit on a person's net worth, which may not be as obvious as some of the other benefits and costs.

5.   Remind students that a person's **net worth** is the value of that person's assets minus the value of his or her liabilities. Assets are things that you own such as a house, stocks, bonds, jewelry, cash, money in a savings account, cars, or coins. Your liabilities are things you owe, such as unpaid bills, a mortgage, a car loan, or unpaid taxes. (See Unit 2: Planning and Tracking.) Discuss the following:

   •   What are some examples of assets? (*Answers will vary but may include houses, cars, gold coins, computers, jewelry, televisions, savings accounts, stocks, bonds, cash, and so on.*)

   •   What are some examples of liabilities, or debt? (*Answers will vary but may include home mortgages, car loans, student loans, unpaid credit card balances, unpaid taxes, and so on.*)

6.   Explain the following:

   •   Typically, people wish to grow their net worth, or wealth, over time because it increases their financial security.

   •   One way to assess the desirability of taking out a loan or getting credit is to consider how it will affect your net worth over time.

   •   Taking out a loan adds immediately to your debt, or liabilities, which has a nega-

tive impact on your net worth.

- The question to ask is whether a loan or credit increases the value of your assets enough over time to offset the initial increase in your liabilities (plus any future finance costs).

7. Distribute a copy of *Handout 9B.1: Are These Worth Buying With Credit?* to each student. Tell the students they are going to evaluate the current and possible future effects of using a loan or credit for various purchases. Review the directions and instruct the students to complete the handout individually (or assign groups). Allow time for students to complete the handout and then review answers as time permits.

8. Display Handout 9B.1—Answer Key and have students check their answers. Further explain answers if necessary as follows:

- **House:** A house is an asset. The market value of houses has historically risen over time; however, it can also fall. (Note: Housing prices in many areas of the country did fall during the 2007-08 financial crisis.)

- **Vacation:** Using credit for a vacation does not create an asset now or in the future. Having to pay off the loan in the future will decrease your assets.

- **Education:** Although education is not a financial asset, because education builds a person's human capital, it is likely to lead to higher future income and a better ability to acquire assets in the future.

- **Car:** A car is an asset, but its market value tends to fall (depreciate) very quickly. If a car enables you to earn income (get to work), it could lead to a better ability to acquire assets in the future.

- **Furniture:** Furniture is an asset; however, its market value tends to fall over time.

- **Pizza:** Buying and eating a pizza does not create an asset now or in the future. Having to pay off the credit card balance in the future will decrease your assets.

- **Electronic gaming system:** An electronic gaming system is an asset; however, its market value tends to fall very quickly. Having to pay off the credit card balance in the future will decrease you assets.

- **Gasoline:** Buying gasoline does not create an asset now or in the future. However, you may need gasoline to travel to work. Having to pay off the credit card balance in the future (if you do not pay the balance in full each month) will decrease your future assets.

9. Discuss the following:

- Which of the purchases on Handout 9B:1 seem like reasonable uses of credit regarding the future impact on assets? (*Loans for a house and education are likely to have long-term positive impacts on the value of your assets and net worth. A car is a special case where a depreciating asset may be worth buying with credit.*

The other purchases would either not increase the value of your assets or would actually reduce it over time, decreasing your net worth.)

Closure

10. Explain the following:

    • With the exception of education, using credit for non-asset purchases (such as a vacation, pizza, or cable TV service) will increase your liabilities and lower your net worth.

    • Similarly, except perhaps for a car, using credit to purchase assets that tend to fall in value (depreciate) quickly over time (such as furniture or an electronic gaming system) would also likely lower your net worth over time (as the loan balance would likely exceed the value of the asset). Unless there are other benefits to offset the costs of such purchases, credit may not be in your best interest.

Assessment

11. Distribute a copy of *Handout 9B.2: Assessment* to each student and allow time for students to work (or assign as homework).

    ### Handout 9B.2: Assessment—Answer Key

    Frank is facing a choice. He wants both a newer car and to spend a month in Europe; each costs $6,000. He has decided he will use credit now for one of his options and save his money for three years to pay for the other.

    Option 1: Use credit now to purchase a newer car and save for a vacation in three years.

    Option 2: Use credit now to pay for a European vacation and save to purchase a newer car in three years.

    Explain to Frank how each option will affect his net worth and then make a recommendation for which option he should choose.

    Option 1: *Borrowing $6,000 to buy a car would increase Frank's liabilities, but it would add assets equal to the value of the car ($6,000 at the time of purchase). Because the car has value, the purchase will have minimal impact on Frank's net worth.*

    Option 2: *Borrowing $6,000 to spend a month in Europe will increase Frank's liabilities, and it would add $0 to his assets. It will have a negative effect on Frank's net worth.*

    Based on the effects of spending on Frank's net worth, students should advise Frank that Option 1 is a better choice.

Visual 9B.1: Types of Credit (page 1 of 2)

Service Credit

- Issuers: utility services (e.g., water, electricity, or Internet)
- Receive services for a given period (usually a month) and pay at the end of that period
- No interest charged if bill is paid on time

Installment Credit

- Issuers: stores or companies
- Buy goods or services with equal payments over a set period (e.g., a year)
- Down payment often required
- Finance charges (interest) possible
- Example: Purchase a $700 bicycle at a bike shop and pay $100 (the down payment) and $55 per month for a year at a 10% interest rate ($600 × 0.10 = $60 and $660/12 = $55)

Charge Card

- Issuers: stores or companies (e.g., American Express and department store charge cards)
- Buy goods or services and repay in full at the end of the month
- Generally interest free
- Often an annual fee

Credit Card

- Issuers: stores or companies (e.g., MasterCard, Discover, and VISA)
- Buy goods and services up to a given dollar limit, with a minimum payment due each month
- No interest charged if paid in full at the end of the month; interest charged the next month on the unpaid balance
- May have an annual fee

Visual 9B.1: Types of Credit (page 2 of 2)

Personal Loan

- Issuers: financial institutions
- Make purchases or pay off past debts
- Finance charges assessed
- Typically unsecured (no collateral [valuable asset] required)
- Example: Borrow $3,000 from a credit union to purchase a boat

Auto Loan

- Issuer: financial institutions or auto dealerships
- Buy a car with equal payments over a set period (usually several years)
- Typically secured, with the car being the collateral
- Finance charges assessed
- Example: Borrow $10,000 from a commercial bank and make 60 monthly payments of $200 (or a total of $12,000 = 60 × $200, so the finance charges [including interest] are $2,000 = $12,000 − $10,000)

Home Loan (mortgage)

- Issuer: Financial institutions
- Purchase a house or property
- Typically secured, with the collateral being the house or property
- Finance charges assessed
- Example: Borrow $200,000 from a mortgage company and make 360 monthly payments of $1,100 (or a total of $396,000 = 360 × $1,100, so the finance charges [including interest] are $196,000 = $396,000 − $200,000).

Student Loan

- Issuer: the federal government or financial institutions
- Pay for education beyond high school with the obligation to repay after graduation
- Finance charges assessed
- Unsecured
- Example: Stafford loan

Making Personal Finance Decisions

Handout 9B.1: Are These Goods Worth Buying With Credit?

Name:_____

Directions: For each purchase, determine how it will affect your assets both now and over time. Write "+" for increase, "−" for decrease, and "0" for no effect.

Purchase	Credit type	Effect on assets	
		Now	**Over time**
Home	Mortgage		
Vacation	Personal loan		
Education	Student loan		
Car	Auto loan		
Furniture	Credit card		
Pizza	Credit card		
Electronic gaming system	Personal loan		
Gasoline	Credit card		

Handout 9B.1: Are These Goods Worth Buying With Credit?—Answer Key

Directions: For each purchase, determine how it will affect your assets both now and over time. Write "+" for increase, "−" for decrease, and "0" for no effect.

Purchase	Credit type	Effect on assets	
		Now	**Over time**
Home	Mortgage	+	+ or −
Vacation	Personal loan	0	−
Education	Student loan	0	+
Car	Auto loan	+	− or +
Furniture	Credit card	+	−
Pizza	Credit card	0	−
Electronic gaming system	Personal loan	+	−
Gasoline	Credit card	0	−

Handout 9B.2: Assessment

Name:_____

Frank is facing a choice. He wants both a newer car and to spend a month in Europe; each costs $6,000. He has decided he will use credit now for one of his options and save his money for three years to pay for the other.

Option 1: Use credit now to purchase a newer car and save for a vacation in three years.

Option 2: Use credit now to pay for a European vacation and save to purchase a newer car in three years.

Explain to Frank how each option will affect his net worth and then make a recommendation for which option he should choose.

Standards and Benchmarks

National Standards for Financial Literacy

Standard 4: Using Credit. Credit allows people to purchase goods and services that they can use today and pay for those goods and services in the future with interest. People choose among different credit options that have different costs. Lenders approve or deny applications for loans based on an evaluation of the borrower's past credit history and expected ability to pay in the future. Higher-risk borrowers are charged higher interest rates; lower-risk borrowers are charged lower interest rates.

- **Benchmark: Grade 4**

    2. When people use credit, they receive something of value now and agree to repay the lender over time, or at some date in the future, with interest.

- **Benchmark: Grade 8**

    4. Borrowers who use credit cards for purchases and who do not pay the full balance when it is due pay much higher costs for their purchases because interest is charged monthly. A credit card user can avoid interest charges by paying the entire balance within the grace period specified by the financial institution.

    8. People can use credit to finance investments in education and housing. The benefits of using credit in this way are spread out over a period of time and may be large. The large costs of acquiring the education or housing are spread out over time as well. The benefits of using credit to make daily purchases of food or clothing are short-lived and do not accumulate over time.

- **Benchmark: Grade 12**

    3. Loans can be unsecured or secured with collateral. Collateral is a piece of property that can be sold by the lender to recover all or part of a loan if the borrower fails to repay. Because secured loans are viewed as having less risk, lenders charge a lower interest rate than they charge for unsecured loans.

    11. People often apply for a mortgage to purchase a home. A mortgage is a type of loan that is secured by real estate property as collateral.

Making Personal Finance Decisions

Lesson 10A:

The Three D's of Identity Theft

Rule 10: Protect your finances.

While financial risk is most often associated with investment risk, other risks can also keep you from achieving your financial goals. For example, car accidents, medical issues, house fires, lawsuits, and theft (including identity theft) all represent potential obstacles. These risks can be managed by (i) reducing your potential exposure to identity theft or (ii) buying insurance. These lessons use games featuring random, unwelcome events to help students consider ways to wisely manage risk.

Lesson Description

Students are introduced to various options for deterring and detecting identity theft. They then play a game about identity protection. They choose ways to protect their identity and then face random events where their identity will either remain safe or be stolen. They learn that 100% identity protection is not possible and ways to defend themselves if identity theft occurs.

Standards and Benchmarks (see page 242)

Grade Level

9-12

Concepts

Identity theft

The three D's of identity theft: deter, detect, and defend

Phishing

Making Personal Finance Decisions

Compelling Question

How can consumers reduce the risk of identity theft?

Objectives

Students will be able to

- identify strategies to protect their personal information,

- identify strategies used by identity thieves to steal their identity, and

- describe the three D's of identity theft—deter, detect, and defend.

Materials

- Visual 10A.1: Identity Protection Options

- Visual 10A.2: The Three D's of Identity Theft

- Handout 10A.1: Safe or Not?

- Handout 10A.2: Events, one copy (21 events) cut apart for each group of four to five students (or create larger groups if desired)

- Handout 10A.3: Deck One Cards, copied on colored paper and cut apart, with one copy for each group of four to five students (Each Deck One includes 19 SAFE cards and 1 IDENTITY STOLEN card.)

- Handout 10A.4: Deck Two Cards, copied on colored paper (a different color from Deck One) and cut apart, with one copy for each group of four to five students (Each Deck Two includes 13 SAFE cards and 7 IDENTITY STOLEN cards.)

- Handout 10A.5: Assessment, one copy for each student

Time Required

45 minutes

Procedure

1. To begin the lesson, ask students what they know about "identity theft." (*Answers will vary.*)

2. Explain that **identity theft** is a form of stealing that results in someone gaining access to another person's personal information (such as name, address, driver's license number, credit card numbers, date of birth, birthplace, or Social Security number) to commit all or any of the following crimes:

- gaining access to bank accounts to steal money,

- making purchases with credit or debit cards,

- opening credit, or

- engaging in other criminal behavior.

3. Explain that identity theft can be costly and time-consuming to correct and can have adverse financial consequences, including

- loss of financial assets,

- a damaged credit score, and

- mistaken criminal charges.

4. Discuss the following:

- What types of personal information might be useful to an identity thief? (*Answers will vary but may include Social Security numbers, computer passwords, credit and debit card numbers, personal identification numbers [PINs] for credit and debit accounts, banking account numbers, medical records, tax records, utility bill statements, and so on.*)

5. Explain that one method identity thieves use to steal personal information is **phishing**. Phishing is when someone attempts to get your personal information by pretending to work for a legitimate or legitimate-sounding organization, such as a bank or the government. For example, you might get an email that looks like it is from your bank that asks you to click a link and update your personal information, such as your password, date of birth, or Social Security number. Explain that the principal way to protect your personal information, is to deter thieves or detect their activities as quickly as possible. Discuss the following:

- What are some ways to protect yourself from identity theft? (*Answers will vary. See* Visual 10A.1: Identity Protection Options *for a list of ways.*)

6. Display Visual 10A.1. Review each option. Discuss the following:

- What are some additional possibilities for protecting your identity? (*Others might include some noted earlier by students, plus using fewer paper checks, signing debit and credit cards as soon as they are received, and checking receipts with billing statements.*)

7. Explain that doing all these things to protect your identity takes time, effort, and in some cases money (e.g., to buy a shredder or have a hard drive professionally erased). Because people's time, effort, and money are limited, they are often unable to do all of these options all of the time.

Making Personal Finance Decisions

8. Distribute a copy of *Handout 10A.1: Safe or Not?* to each student. Tell the class that they are going to play a game called "Safe or Not?" using the protection options on Visual 10A.1.

9. Divide the class into small groups of four to five students (or create larger groups if desired). Give each group the following:

    *   One set of event strips from *Handout 10A.2: Events*. (Each set includes 21 strips).

    *   One set of shuffled Deck One cards from *Handout 10A.3: Deck One Cards*. (Each set includes 20 cards: 19 SAFE cards and 1 IDENTITY STOLEN card.)

    *   One set of shuffled Deck Two cards from *Handout 10A.4: Deck Two Cards* (Each set should consist of 20 cards: 13 SAFE cards and 7 IDENTITY STOLEN cards).

10. Explain that since time, effort, and money are limited, as part of the game, each student may choose only *10* of the 20 protection options listed on Visual 10A.1. Instruct the students to write down the numbers of their choices in Part A of Handout 10A.1 and a short description of each in their own words. Explain that the chances they will need any of the listed protection options during the game are the same.

11. Explain the rules of the game as follows:

    *   There will be 10 rounds. At the end of each round, you will be either safe or have your identity stolen. For each round, you will circle your outcome in Part B of Handout 10A.1.

    *   At the beginning of each round, one student in each group will randomly select an EVENT strip for the group and read it to the group.

    *   Each person in the group will then check to see whether you have the chosen a Protection Option that will protect you from the event selected for your group. If you have the necessary Protection Option, you will draw a card from Deck One. If you do not have the necessary Protection Option, you will draw a card from Deck Two. Moving to the right of the student who drew the event strip, each group member is to draw from the appropriate deck. The cards will say either "SAFE" or "IDENTITY STOLEN."

    *   Create discard piles for Deck One and Deck Two.

    *   Circle the outcome of each round on your handout.

    *   Even though you may have the necessary Protection Option, it is still possible to draw an "IDENTITY STOLEN" card from Deck One because no protection option is likely to be followed 100% of the time and you can't protect yourself from some events.

    *   Even though you might not have the necessary Protection Option and therefore must draw from Deck Two, you still have a good chance of drawing a SAFE card, but there is a greater chance of drawing an IDENTITY STOLEN card.

- One event has no Protection Option. If this event is drawn, all members of the group must draw from Deck Two.

- Once a deck is depleted, reshuffle and restack the cards.

(**Teacher note:** *Given the number and types of cards in the decks, there is a 20% chance of drawing an IDENTITY STOLEN card and an 80% chance of drawing a SAFE card. Note further that students are seven times more likely to have their identity stolen without protection than with it.*)

12. Begin the game and have students record their results in Part B of Handout 10A.1. Play for 10 rounds.

13. After the game, instruct the students to complete Part C of Handout 10A.1. Allow students time to complete the assignment and then invite some students to share their answers.

    ### Handout 10A.1: Safe or Not?—Part C Answer Key

    1. How many times was your identity stolen?
       Answers will vary.

    2. Although it is important to protect your identity, explain why complete protection is not possible.
       Answers will vary but should be similar to the following: First, it is not possible to pursue every possible option to protect your identity. There is simply not enough time, effort, or money to do so. Second, it is not possible to be vigilant about identity protection 100% of the time—sometimes everyone lets his or her guard down. Third, even when you have the necessary protection, you can still have your identity stolen. You simply can't protect yourself against some events, such as a data breach at your bank or at a company you do business with.)

14. Display *Visual 10A.2: The Three D's of Identity Theft*. Point out that the protection options in the game represent two of the "Three D's of Identity Theft." Review the points under "**Deter**" and "**Detect**." Explain that the third "D" is **defend**, which refers to actions to take if you suspect identity theft. Review the points under "Defend."

    (**Teacher note:** *A fraud alert or freeze will make it more difficult for identity thieves to open new accounts in your name.*)

Closure

15. Explain the following:

    - You can greatly reduce the likelihood of identity theft by protecting yourself.

    - Some protection options have no cost, others do.

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- You must weigh the costs of your options and decide which options are best for you.

- If you are very concerned about identity theft and its consequences, choosing several strategies for protecting personal information would make good sense.

- The more protection options you choose, the less likely you will have your identity stolen but the more costs you will incur.

- Unfortunately, no matter how many precautions you take, 100% identity protection is not possible.

- You need to take action quickly if you suspect your identity has been stolen.

Assessment

16. Distribute a copy of *Handout 10A.5: Assessment* to each student and allow time for students to work (or assign as homework).

Handout 10.A.5: Assessment—Answer Key

1. List five strategies identity thieves use to steal your identity. Then list five strategies you can use to protect your personal information from these threats.

   Students should provide examples such as those listed on Visuals 10.A1 and 10.A2.

2. The elderly tend to be susceptible to fraud and identity theft. Write a short paragraph below in which you describe what "phishing" is to a grandparent or elderly friend.

   Answers will vary but may be similar to the following: Phishing is when someone attempts to get your personal information by pretending to work for a legitimate or legitimate-sounding organization, such as a bank or the government. You could be contacted by email or by phone or other ways. For example, you might get an email that looks like it is from your bank that asks you to click a link and update your personal information, such as your password, date of birth, or Social Security number. Do not click such links. When in doubt, call the organization directly.

3. Describe the three D's of identity theft in your own words.

   The three D's of identity theft are deter, detect, and defend. Answers will vary, but should be similar to the following: "Deter" is to prevent identity theft by protecting personal information from others. "Detect" is to monitor or "keep an eye" on financial accounts—watching for unusual activity that might mean someone has stolen your identity. "Defend" is to take action if you suspect your identity has been compromised.

Visual 10A.1: Identity Protection Options

1. Shred anything that includes your personal information (PI) before throwing it away.

2. Be aware of your surroundings when inputting your PI.

3. Keep your Social Security number, PINs, and password information in a secure place other than your wallet/purse.

4. Remove mail from your mailbox as soon as possible.

5. Keep all of your credit and debit cards secure, and do not swipe them in unfamiliar or questionable devices.

6. Use firewalls, anti-spyware, and anti-virus software on your computer.

7. Use strong passwords not associated with your PI.

8. Do not respond to email, phone, or mail requests for your PI.

9. Make sure online transactions are handled through a secure ("https") site or use encrypted code.

10. Remove all PI from any electronic device before disposal.

11. Limit the PI you share on social-networking sites.

12. Limit the PI you share in general (private and public).

13. Monitor all billing statements and financial accounts.

14. Shop only on websites that have strong privacy and protection policies.

15. Question when expected bills and statements do not arrive on time.

16. Question unexpected bills and statements for things you did not purchase.

17. Beware of "phishing" attempts to steal your PI through legitimate-looking emails.

18. Inspect your credit report—from all three credit-reporting agencies, Equifax, Experian, and Trans Union—at least annually.

19. Question unsolicited employment offers that request your PI.

20. Limit the number of credit cards/accounts you have and close any accounts you are not using.

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Visual 10A.2: The Three D's of Identity Theft

Deter: Safeguard your personal information.

1. Shred anything that contains personal information before discarding it.

2. Keep Social Security number, PINs, passwords, account statements, tax statements, and other personal information in secure places.

3. Use firewalls, anti-spyware, and anti-virus software to protect your computer.

4. Do not respond to unsolicited emails, phone calls, or mailings requesting any personal information.

5. Be cautious at all times when using credit or debit cards.

Detect: Monitor your statements and reports.

1. Look for unexplained charges or activities in your financial accounts.

2. Inspect your credit report from all three providers (at least annually) to see that it is accurate.

3. Question expected bills or account statements that do not arrive on time.

4. Question unexpected bills or account statements you receive that are not yours.

5. Be alert to calls about purchases you did not make or denials of credit for no apparent reason.

Defend: Implement your defense.

1. If your identity is stolen, contact one of the credit reporting agencies and place a "fraud alert" or "freeze" on your credit report.

2. Review your credit report and report any activity that you did not initiate.

3. Contact the security or fraud department of any company where there has been suspicious activity and close any questionable account.

4. File a police report.

5. Report identity theft to the Federal Trade Commission: www.identitytheft.gov.

Handout 10A.1: Safe or Not?   Name:_____

Part A

Directions: Choose 10 Protection Options from Visual 10A.1, record each of the option numbers below, and write a short description of each.

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

Part B

Directions: Follow the game directions given by your teacher. For each round, circle whether you were "SAFE" or had your "IDENTITY STOLEN."

Round 1.	SAFE	IDENTITY STOLEN
Round 2.	SAFE	IDENTITY STOLEN
Round 3.	SAFE	IDENTITY STOLEN
Round 4.	SAFE	IDENTITY STOLEN
Round 5.	SAFE	IDENTITY STOLEN
Round 6.	SAFE	IDENTITY STOLEN
Round 7.	SAFE	IDENTITY STOLEN
Round 8.	SAFE	IDENTITY STOLEN
Round 9.	SAFE	IDENTITY STOLEN
Round 10.	SAFE	IDENTITY STOLEN

Part C

1.   How many times was your identity stolen? _____

2.   Although it is very important to protect your identity, explain why complete protection is not possible.

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Handout 10A.2: Events (page 1 of 3)

Someone has gone "dumpster diving" in your trash!
Do you have Protection Option 1?

Someone is trying to "shoulder surf"
while you enter your PIN at an ATM!
Do you have Protection Option 2?

Someone has "picked your pocket" and
taken your wallet with your Social Security card in it!
Do you have Protection Option 3?

Someone is thinking about taking your
bank statement out of your mailbox!
Do you have Protection Option 4?

A waiter may take your credit card and
"skim" your personal information!
Do you have Protection Option 5?

A hacker is attempting to access your
personal information through your computer!
Do you have Protection Option 6?

Someone is trying to guess your PIN based on your birthdate!
Do you have Protection Option 7?

Handout 10A.2: Events (page 2 of 3)

**You receive a phone call from someone claiming to work
for your cell phone service provider. They want to
update your current personal information.
Do you have Protection Option 8?**

**You make a purchase with a credit card online.
Do you have Protection Option 9?**

**You have a computer you want to take to the recycling center.
Do you have Protection Option 10?**

**Someone surfing on a social-media network has
learned that you will not be home this weekend!
Do you have Protection Option 11?**

**Your local paper has published a story about you
that includes a lot of your personal information!
Do you have Protection Option 12?**

**There are some transactions on your
credit card statement that you did not make!
Do you have Protection Option 13?**

**You are shopping online with a company that regularly resells
its customers' personal information to other companies!
Do you have Protection Option 14**

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Handout 10A.2: Events (page 3 of 3)

**You have not received your monthly
utility bill for two months!
Do you have Protection Option 15?**

**You have received a bill from a company
for a purchase you did not make!
Do you have Protection Option 16?**

**You receive an email that appears to be
from your bank asking you to update your
personal information by replying to the email.
Do you have Protection Option 17?**

**Someone took out an auto loan
in your name without your permission!
Do you have Protection Option 18?**

**You have received an unsolicited job offer asking you
to fill out an application with your personal information!
Do you have Protection Option 19?**

**An old account you forgot to close
has sent a statement to your old address!
Do you have Protection Option 20?**

**A company you do business with has had a data breach
and your PI stored by them has been compromised!
You have *no* protection.**

Handout 10A.3: Deck One Cards (page 1 of 2)

# SAFE	# SAFE
# SAFE	# SAFE
# SAFE	# SAFE
# SAFE	# SAFE
# SAFE	# SAFE

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Handout 10A.3: Deck One Cards (page 2 of 2)

SAFE	**SAFE**
SAFE	**SAFE**
SAFE	**SAFE**
SAFE	**SAFE**
SAFE	**IDENTITY STOLEN**

Handout 10A.4: Deck Two Cards (page 1 of 2)

SAFE	**SAFE**
SAFE	**SAFE**
SAFE	**SAFE**
SAFE	**SAFE**
SAFE	**SAFE**

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Handout 10A.4: Deck Two Cards (page 2 of 2)

SAFE	**SAFE**
SAFE	**IDENTITY STOLEN**
IDENTITY STOLEN	**IDENTITY STOLEN**
IDENTITY STOLEN	**IDENTITY STOLEN**
IDENTITY STOLEN	**IDENTITY STOLEN**

Handout 10A.5: Assessment   Name:_____

1.   List five strategies identity thieves use to steal your identity. Then list five strategies
     you can use to protect your personal information from these threats.

1.	
2.	
3.	
4.	
5.	

2.   The elderly tend to be susceptible to fraud and identity theft. Write a short paragraph
     below in which you describe what "phishing" is to a grandparent or elderly friend.

3.   Describe the three D's of identity theft in your own words.

Standards and Benchmarks

National Standards for Financial Literacy

Standard 6: Protecting and Insuring. People make choices to protect themselves from the financial risk of lost income, assets, health, or identity. They can choose to accept risk, reduce risk, or transfer risk to others. Insurance allows people to transfer risk by paying a fee now to avoid the possibility of a larger loss later. The price of insurance is influenced by an individual's behavior.

- • Benchmark: Grade 8

    8. Social networking sites and other online activity can make individuals vulnerable to harm caused by identity theft or misuse of their personal information.

- • Benchmarks: Grade 12

    13. Loss of assets, wealth, and future opportunities can occur if an individual's personal information is obtained by others through identity theft and then used fraudulently. By managing their personal information and choosing the environment in which it is revealed, individuals can accept, reduce, and insure against the risk of loss due to identity theft.

    14. Federal and state regulations provide some remedies and assistance for victims of identity theft.

Lesson 10B:

Is Insurance Worth Buying?

Rule 10: Protect your plan.

While financial risk is most often associated with investment risk, other risks can also keep you from achieving your financial goals. For example, car accidents, medical issues, house fires, lawsuits, and theft (including identity theft) all represent potential obstacles. These risks can be managed by (i) reducing your potential exposure to identity theft or (ii) buying insurance. These lessons use games featuring random, unwelcome events to help students consider ways to wisely manage risk.

Lesson Description

Students learn about insurance options and possible risks. They play a game where they first choose levels of insurance coverage and then face random events. They track the cost of their insurance choices (premiums plus lost investment income) and the benefit of their choices (loss reduction) based on each event drawn. They determine whether the insurance choices they made were financially beneficial or not and why insurance may be a good idea regardless.

Standards and Benchmarks (see page 256)

Grade Level

9-12

Concepts

Insurance

Opportunity cost

Premium

Risk

Compelling Question

How can consumers reduce their risk of financial loss?

Objectives

Students will be able to

- define insurance, premium, deductible, copay, and liability;

- describe the benefits of insurance (loss reduction);

- describe the costs of insurance (premiums plus other opportunity costs); and

- explain why buying insurance may be a good idea even if the costs exceed the benefits over a given period.

Materials

- Visual 10B.1: Risks

- Handout 10B.1: Managing Risk, one copy for each student (NOTE: For ease of use, copy as separate pages, not back-to-back.)

- Handout 10B.1: Managing Risk—Answer Key, Part B: My Life Events

- Handout 10B.2: Assessment, one copy for each student

- Handout 10B.2: Assessment—Answer Key

- One regular deck of (52) cards

- Calculators (optional)

Time

50 minutes

Procedure

1. Distribute a copy of *Handout 10B.1: Managing Risk* to each student. Refer to Part A: My Insurance Coverage (page 1 of 2) and explain the following:

    - **Insurance** is protection from possible financial loss.

    - Insurance is a product that allows people to pay a fee (called a premium) now to transfer the costs of a potential loss to a third party (an insurance company).

    - Types of insurance include health, automobile, renters, disability, and life.

- Each type of insurance offers several options with various amounts of coverage, or protection. The handout lists some potential options.

- The payment for insurance is a called a **premium**, and it covers you for a specific amount of time. For example, an annual premium covers you for one year.

- As the coverage gets better, the premium is higher because the insurance company would have to pay more for a claim.

2. Review the meaning of each type of coverage as follows:

Health Insurance

- The co-pay is the amount you will have to pay for each office visit to a doctor. The insurance company will pay the rest.

- The hospitalization percentage is the amount of the bill the insurance company will pay if you are hospitalized.

Automobile Insurance

- The deductible is the amount you will have to pay to repair your car if you have an accident. (Comprehensive and collision coverage are combined here for simplicity.) The insurance company will pay the cost above the deductible.

- Liability coverage protects you from having to pay for damage you cause if you have an accident. The insurance company will pay up to the given limit, and you will have to pay the rest.

Renters Insurance

- The deductible is the amount you will have to pay in the event of a loss. The insurance company will then cover—pay—up to the amount shown. Anything above that limit will be your responsibility.

Disability Insurance

- Each unit of coverage will pay a certain amount per month in the event of a long-term injury or illness.

Life Insurance

- Each unit of coverage will pay your beneficiaries a specified amount if you die. That money could be used to cover funeral expenses, personal debts, or simply as income for your beneficiaries.

3. Explain that the students will participate in a game where they will weigh the benefits of insurance coverage against its costs and choose levels of coverage. The benefit of insurance is lower losses (less money to pay) when bad things happen.

4. Display *Visual 10B.1: Risks*. Define **risk** as the chance of loss. Explain that the visual shows potential events and the amount of loss (cost) each would bring. These events will be used in the game.

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5. Divide the class into four to eight groups.

    (**Teacher note:** *Having more groups will result in more varied outcomes; however, the activity would take more time since more cards would need to be drawn and reviewed.*)

    Explain the game as follows:

    •   Each round in the game will represent 1 year.

    •   Before the game begins, you will fill out *Handout 10B.1, Part A: Your Insurance Coverage* to decide for yourselves how much insurance to purchase for each type of insurance shown. Once chosen, the insurance levels cannot be changed.

    •   The letters and numbers on Visual 10B.1 correspond to cards in a regular deck of cards. J is for jack, Q is for queen, K is for king, and A is for ace.

    •   For each round, one member of each group will randomly select one card that will determine the life event that occurs for each member of that group that year. For example, if an "8" card is drawn, each person in the group had 10 visits to their doctor costing $2,000 ($200 each visit) and a hospital stay costing $6,000. With no insurance, they would have to pay $8,000 each. How much each person actually pays will depend on the level of health insurance he or she chose. (*Optional: The expected loss of each event is actually fairly easy to determine. For example, there is a 1 in 13 chance of drawing an "8," or 0.077. This probability times the loss of $8,000 yields an expected loss of $616.*)

    •   The two Js, Qs, Ks, and As on Visual 10B.1 (e.g., K-K) indicate back-to-back events. If a group draws a jack, queen, king, or ace and then draws that same type of card in the next round, then back-to-back events have occurred and the double-letter event applies. If a group draws the same type of card for the third time, the single-letter event applies. Drawing back-to-back aces indicates death and is the end of the game for that group.

6. Explain that the benefit of insurance is that it lowers your financial loss when such events occur. Discuss the following:

    •   What are the costs of insurance? (*Most students will recognize premiums as an important cost, but there are also opportunity costs.*)

    •   If you pay $1,000 in insurance premiums, you lose the opportunity to invest these funds and earn what? (*You lose the opportunity to earn interest, or a rate of return. You also lose the opportunity to spend the $1,000 on something else.*)

    •   If you could earn a 5 percent rate of return on invested funds, what would be your total cost of buying $1,000 of insurance? (*$1,050 = $1,000 [1 + 0.05].*)

7. Direct the students to Part A of Handout 10B.1. Instruct them to choose a level of coverage for each insurance category based on the following directions:

    •   You may spend a total of $4,000 on insurance.

- All states require basic liability automobile coverage, so you are required to choose at least option 3 for auto insurance.

- Your goal is to buy enough on coverage to protect yourself from losses, but not so much that you spend far more on insurance than it is worth.

- Since you can't know what will happen for sure, there is no way of determining the exact amount of coverage you will need (where the benefits of the insurance exactly offset the costs).

- Compare the risks and the premiums and make the choices you are most comfortable with.

8. Direct the students to Part B: My Life Events on Handout 10B.1. Explain the following, allowing the students time to complete each part as you go:

   - First enter the "Total Annual Insurance Premiums" from the bottom of Part A of Handout 10 B.1 on every line in Column (1) of Part B of Handout 10B.1. This will be your premium payment for every round (year) of the activity—no changes will be allowed.

   - Next calculate the opportunity cost of lost interest due to making the premium payments—5 percent of the total in Column (1)—and enter it on every line of Column (2) of Part B. (So, for example, if a student decided to spend $4,000 on premiums, he or she would enter $4,000 in Column (1) and $200 in Column (2).)

   - Losses without insurance will be entered in Column (3). This is how much the event will cost and will be determined by the card drawn. This amount will be the same for all group members. Everyone is to write it down.

   - Losses with insurance coverage will be entered into Column (4). This is how much you will have to pay yourself and will be based on the insurance coverage you chose. This amount will differ from group member to group member if insurance coverage differs.

9. Provide the following example to illustrate how the game works:

   - Suppose your group draws an "8" card.

   - Everyone in your group should record "$8,000" in Column (3).

   - The amount you enter in Column (4) is how much you have to pay. It will depend on the health insurance you chose as follows:

     - Option 1: You would enter $100 in Column (4) for 10 office (doctor) visits with a $10 co-pay each, and $0 for the hospital stay because the insurance company pays 100% of hospitalization.

     - Option 2: You would enter $1,400 in Column (4), which is $200 for 10 office visits with a $20 co-pay each and $1,200 for the hospital stay, which is 20% of the $6,000 hospital bill. The insurance company would pay the other 80%, or $4,800.

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    ○   Option 3: You would enter $2,000 in Column (4) for the office visits only. The hospital stay would be fully covered.

    ○   Option 4: You would enter $8,000 in Column (4) because you do not have insurance and would have to pay the full amount.

10. Begin the game. Invite a member of each group to draw a card from the deck (replacing the card each time) to determine that group's event for Year 1. Instruct each group to complete Columns (3) and (4) as described above. Repeat for as many rounds as time allows (but at least four rounds is suggested to give students a better idea of risk over time).

    Teacher note: *Students may need help determining the cost for Column (4). Typically, other members in their group can help, but it may be helpful for you to summarize the costs for different levels of coverage. See* Handout 10B.1: Managing Risk—Answer Key, Part B: My Life Events *for costs.*

11. Instruct the students to total the columns on Part B of Handout 10B.1 and complete Part C: Did Insurance Pay?

12. Discuss the following:

- Who is really glad they bought insurance? (*For groups with particularly costly events, those who bought more coverage will likely be glad. In their case, the losses without insurance would have been much greater.*)

- Who wishes they would have bought a lot less insurance? (*For groups with fairly inexpensive events, those who bought a lot of coverage will likely wish they hadn't "wasted their money." In their case, the losses without insurance would have been much less.*)

13. Explain the following:

- Insurance works like this: Insurance companies collect a relatively small amount of money (premiums) from a large group of policyholders.

- These premiums are used to create a pool of funds to compensate policyholders who experience a loss.

- The premium payments of those with minor or no losses help the insurance company cover the losses of those with major losses.

- Premiums are typically set by insurance companies based on the expected payouts they are likely to make—plus a profit, of course. (*Note: The premiums in the game have been calculated as such.*)

- Premiums are set so that most people will pay more in premiums than they receive in claims.

- While some groups in the game may have had more costly events than others, if more rounds were played, the fortunes of the groups could have easily reversed.

- Even if insurance doesn't seem worth it for a given period, it doesn't mean it won't be later.

Closure

14. Review the key points of the lesson by asking the following questions:

- What is insurance? (*Protection against loss*)

- What are common types of insurance? (*Health, life, renters, automobile, and disability*)

- What do we call the payment we make for insurance? (*A premium*)

- What is a co-pay? (*The amount a person with insurance pays for an office visit to the doctor*)

- What is a deductible? (*The amount an insured person pays in the event of a loss*)

- What is the benefit of insurance? (*Loss reduction*)

- What are the costs of insurance? (*The price of the premium plus opportunity costs*)

- Why might buying insurance be a good idea even if the costs exceed the benefits over a given period? (*Things change over time. You can't predict when an accident or natural disaster might occur. So, in the long run, it is better to have insurance.*)

Assessment

15. Distribute a copy of *Handout 10B.2: Assessment* to each student. Allow time for students to work (or assign as homework) and then review answers using *Handout 10B.2: Assessment—Answer Key*.

Visual 10B.1: Risks

Health Losses

Card and event		Loss
2	1 office visit	$200
3	2 office visits	$400
4	5 office visits	$1,000
5	10 office visits	$2,000
6	15 office visits	$3,000
7	20 office visits	$4,000
8	10 office visits, one hospital stay	$2,000 + $6,000 = $8,000
9	15 office visits, two hospital stays	$3,000 + $15,000 = $18,000
10-10	20 office visits, major hospital stay	$4,000 + $76,000 = $80,000

Automobile Losses

Card and event		Loss
A	Minor fender bender	Auto damage: $1,000 Liability: $0
J	Minor accident	Auto damage: $3,000 Liability: $0
J-J	Major accident	Auto damage: $6,000 Liability: $20,000
Q-Q	Major accident with injury	Auto damage: $15,000 Liability: $90,000

Renters Losses

Card and event		Loss
10	Theft of electronics	$1,000
K	Major fire	$4,000

Disability Losses

Card and event		Loss
Q	2 months of disability	$4,000
K-K	1 year of disability	$24,000

Death

Card and Event		Loss
A-A	Death	Financial commitments (burial expenses, debts, loss of income, etc.): $30,000

Handout 10B.1: Managing Risk (page 1 of 2)

Name:_____

Part A: My Insurance Coverage

Directions: When directed by the teacher, choose your desired level of coverage for each type of insurance. You may spend a total of $4,000.

Health Insurance (Office visits, hospitalization) ....$_____

Option 1:	Premium: $3,600 annually	
	Coverage: $10 office visit co-pay, 100% hospitalization	
Option 2:	Premium: $2,800 annually	
	Coverage: $20 office visit co-pay, 80% hospitalization	
Option 3:	Premium: $2,100 annually	
	Coverage: 100% hospitalization only	
Option 4:	No coverage	

Automobile Insurance (Collision and comprehensive [CC], liability) ....$_____

Option 1:	Premium: $1,100 annually
	Coverage: $250 deductible on CC, up to $100,000 liability
Option 2:	Premium: $950 annually
	Coverage: $500 deductible on CC, up to $75,000 liability
Option 3:	Premium: $500 annually
	Coverage: Up to $50,000 liability only
Option 4:	No coverage

Renters Insurance (Fire, theft) ....$_____

Option 1:	Premium: $350 annually
	Coverage: $250 deductible on all losses up to $5,000
Option 2:	Premium: $250 annually
	Coverage: $500 deductible on all losses up to $3,000
Option 3:	No coverage

Disability Insurance (Long-term injury, illness)..$_____

Option 1:	Premium: $240 annually
	Coverage = $1,500/month ($18,000/year)
Option 2:	Premium: $160
	Coverage: $1,000/month ($12,000/year)
Option 3:	Premium: $80
	Coverage: $500/month ($6,000/year)
Option 4:	No coverage

Life Insurance (Death) ....$_____

Option 1:	Premium: $180 annually
	Coverage = $30,000 coverage
Option 2:	Premium: $120 annually
	Coverage = $20,000 coverage
Option 3:	Premium: $60 annually
	Coverage = $10,000 coverage
Option 4:	No coverage

Total Annual Insurance Premiums..$_____

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Handout 10B.1: Managing Risk (page 2 of 2)

Name:_____

Part B: My Life Events

Year	Card	(1) Total annual insurance premiums	(2) Opportunity cost: Column (1) times 0.05	(3) Losses without insurance	(4) Losses with chosen insurance coverage
1					
2					
3					
4					
5					
6					
7					
8					
TOTALS					

Part C: Did Insurance Pay?

1. Add the totals for Columns (1), (2), and (4) to calculate
    your total costs with insurance. ....$_____

2. What was the total cost of losses
    without insurance? (Column 3)..$_____

3. Did insurance pay (lower your costs)?

Handout 10B.1: Managing Risk—Answer Key

Part B: My Life Events, Column (4) Possible Outcomes

Card	Option 1	Option 2	Option 3	Option 4
2	$10	$20	$200	$200
3	$20	$40	$400	$400
4	$50	$100	$1,000	$1,000
5	$100	$200	$2,000	$2,000
6	$150	$300	$3,000	$3,000
7	$200	$400	$4,000	$4,000
8	$100	$1,400	$2,000	$8,000
9	$150	$3,300	$3,000	$18,000
10	$250	$500	$1,000	NA
10-10	$200	$15,600	$4,000	$80,000
A	$250	$500	$1,000	$1,000
A-A	$0	$10,000	$20,000	$30,000
K	$250	$1,500	$4,000	NA
K-K	$6,000	$12,000	$18,000	$24,000
Q	$1,000	$2,000	$3,000	$4,000
Q-Q	$250	$15,500	$55,000	$105,000
J	$250	$500	$3,000	$3,000
J-J	$250	$500	$6,000	$26,000

Making Personal Finance Decisions

Handout 10B.2: Assessment   Name:_____

1.   What is the benefit of health insurance?

2.   What are the costs of health insurance?

3.   Last year, a family with the following health insurance had five office visits, which would have cost $200 per visit without insurance. Had they invested the money instead, they would have earned 5 percent interest.

   Health Insurance (Office visits, hospitalization)

      Premium: $3,600 annually
      Coverage: $10 office visit co-pay, 100% hospitalization

   a.   What was the family's annual cost of health care, including their opportunity cost?

   b.   What would their annual cost of health care have been without health insurance?

   c.   For last year, which would have cost that family less money, Option 1 or no coverage?

   d.   Why might it still be wise for the family to carry health insurance in future years?

Handout 10B.2: Assessment—Answer Key

1. What is the benefit of health insurance?

   Insurance provides protection from possible financial loss—that is, you will have to pay less if you become sick or injured.

2. What are the costs of health insurance?

   The annual premiums plus the opportunity costs—the lost opportunities to spend the money on other goods and services or the lost opportunity to invest the money and earn interest

3. Last year, a family with the following health insurance had five office visits, which would have cost $200 per visit without insurance. Had they invested the money instead, they would have earned 5 percent interest.

   Health Insurance (Office visits, hospitalization)

   > Premium: $3,600 annually
   > Coverage: $10 office visit co-pay, 100% hospitalization

   a. What was the family's annual cost of health care, including their opportunity cost?

      $3,600 (premium) + $180 (interest) + $50 (co-pays) = $3,830

   b. What would their annual cost of health care have been without health insurance?

      5 (office visits) × $200 = $1,000

   c. For last year, which would have cost that family less money, Option 1 or no coverage?

      No coverage

   d. Why might it still be wise for the family to carry health insurance in future years?

      Answers will vary, but should be similar to the following: Insurance is meant to protect people against possible finance loss. Things change over time. One year without high health care costs does not mean that costs will remain that low. You can't predict when sickness or an accident might occur. So, in the long run, it is often better to have insurance.

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Standards and Benchmarks

National Standards for Financial Literacy

Standard 6: Protecting and Insuring. People make choices to protect themselves from the financial risk of lost income, assets, health, or identity. They can choose to accept risk, reduce risk, or transfer risk to others. Insurance allows people to transfer risk by paying a fee now to avoid the possibility of a larger loss later. The price of insurance is influenced by an individual's behavior.

- • Benchmarks: Grade 8
    1. Personal financial risk exists when unexpected events can damage health, income, property, wealth, or future opportunities.
    2. Insurance is a product that allows people to pay a fee (called a premium) now to transfer the costs of a potential loss to a third party.
    3. Insurance companies analyze the outcomes of individuals who face similar types of risks to create insurance contracts (policies). By collecting a relatively small amount of money, called a premium, from each policyholder on a regular basis, the company creates a pool of funds to compensate those individuals who experience a large loss.
    4. Self-insurance is when an individual accepts a risk and saves money on a regular basis to cover a potential loss.
    5. Insurance policies that guarantee higher levels of payment in the event of a loss (coverage) have higher prices.
    6. Insurance companies charge higher premiums to cover higher-risk individuals and events because the risk of monetary loss is greater for these individuals and events.
    7. Individuals can choose to accept some risk, to take steps to avoid or reduce risk, or to transfer risk to others through the purchase of insurance. Each option has different costs and benefits.

- • Benchmarks: Grade 12
    2. Individuals vary with respect to their willingness to accept risk. Most people are willing to pay a small cost now if it means they can avoid a possible larger loss later.
    4. People choose different amounts of insurance coverage based on their willingness to accept risk, as well as their occupation, lifestyle, age, financial profile, and the price of insurance.
    9. Disability insurance is income insurance that provides funds to replace income lost while an individual is ill or injured and unable to work.
    10. Property and casualty insurance (including renters insurance) pays for damage or loss to the insured's property and often includes liability coverage for actions of the insured that cause harm to other people or their property.
    11. Life insurance benefits are paid to the insured's beneficiaries in the event of the policyholder's death. These payments can be used to replace wages lost when the insured person dies.