

Unit 1

Thinking Economically

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. They watch a video that explains the five-step PACED model and allows them to see the decisionmaking process in action as Sarah decides which pet to adopt. Students complete a decisionmaking grid for three high school friends trying to decide what to do on a Friday night. Finally, students learn about trade-offs and opportunity costs through real life examples.

Standards and Benchmarks (see page 18)

Grade Level

9-12

Concepts

Alternatives	Opportunity cost
Compound interest	Trade-off
Criteria	

Compelling Question

How can a decisionmaking process help you make informed decisions?

Making Personal Finance Decisions

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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 the opportunity costs of choices.
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Materials

- Visual 1B.1: Smoke or Be a Millionaire?
 - Handout 1B.1: PACED Decisionmaking Grid, two copies for each student
 - Handout 1B.2: Assessment, one copy for each student and one copy for the teacher to use as a visual
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Time Required

45 minutes

Procedure

1. Tell students they are going to watch a video in which Sarah makes a decision about which pet to adopt. Play the “PACED Decision-Making Model” video on YouTube at <http://bit.ly/PACEDvideo>.
2. Explain that the PACED decisionmaking model is a tool that can help people think through options. Distribute one copy of *Handout 1B.1: PACED Decisionmaking Grid* to each student or display slide 3. Review the five decisionmaking steps of the PACED acronym by discussing the following examples from the video:

Problem

- What was Sarah’s problem? (*It was lonely coming home to an empty apartment every day. Despite wanting a pet, she didn’t know what kind to get.*)

Alternatives

- In Sarah’s case, what kinds of pets did she consider as alternatives? (*Dog, cat, iguana, and parrot*)

Criteria

- In her PACED grid, what criteria did Sarah use? (*Small, quiet, adaptable, cost, love*)

Evaluation

- In Sarah’s grid, how did she indicate whether an alternative satisfied a criterion? (*By entering a plus sign (+) sign*)
 - If an alternative didn’t satisfy a criterion, how did Sarah indicate it on her grid? (*By entering a minus sign (–) sign*)
 - If Sarah wasn’t sure whether an alternative satisfied a criterion, how did she indicate it on her grid? (*By entering a question mark (?)*)
 - After evaluating her alternatives, which pet did Sarah consider to be the best choice? (*The cat*)
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Decision

- Which pet did Sarah adopt? (*The cat*)
 - What made Sarah happy about her decision? (*The PACED decisionmaking model helped her make the right choice.*)
3. Continue to refer to Handout 1B.1 or display slide 4. Explain the following:
 - The problem is stated at the top of the grid.
 - 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.
 4. Divide students into groups of three. Distribute a copy of *Handout 1B.2: PACED What to Do on a Friday Night* to each group.
 5. Tell students they will be working in groups to create a PACED decisionmaking grid for three high school friends. Instruct them to complete Part A of Handout 1B.2. Allow time for students to work, then discuss the following:
 - What problem do Cameron, Kendall, and Dylan have? (*They need to decide what to do on Friday night.*)
 - What are their alternatives? (*Stay home, watch a movie, and have food delivered; go to the movies and eat there; or go to their high school football game and eat there*)
 - What criteria do the three friends use when deciding what to do? (*They can be home by 10pm, it costs 20 or less, and it's something everyone will enjoy.*)
 6. Display slide 5: What to Do on a Friday Night Grid. Discuss the following:
 - Where on the grid should the alternatives be entered? (*Each of the three alternatives should be entered in the first (vertical) column of the PACED grid.*)
 - Where on the grid should the criteria be entered? (*Each of the three criteria should be entered in the first cell of the top (horizontal) row on the PACED grid.*)
 7. Instruct students to evaluate the friends' three alternatives based on their criteria. Explain that they should enter a plus sign (+) in the appropriate cell if the alternative satisfies that criterion, a minus sign (-) if the alternative doesn't satisfy the criterion, or a question mark (?) if they aren't certain if the alternative satisfies the criterion or not. Then, they should add up the number of pluses (+) and enter that sum in the total column for each alternative. Finally, as a group, they should answer questions 2 and 3. Give students time to work on the activity.

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8. Display slide 6: What To Do on a Friday Night—Answer Key. Review the answers to Handout 1B.2 with the help of the students sharing their responses. Encourage them to support their answers with the information from the story. Note: The slide is animated, so when you click on each cell the answer will appear. Discuss the following:
- Based on the PACED grid, what is the best decision for Cameron, Kendall, and Dylan? (*Go to the football game*)
 - Why is this the best decision? (*Because going to the football game satisfies all their criteria*)
9. 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, when choosing what to do on a Friday night, staying in might seem cozy and nice. On the other hand, going to the football game means you get to see the team play, socialize with other friends, and listen to the school band.
 - 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.
 - The choice depends on each person's tastes and preferences—some might value spending less money, while others might value the opportunity to see their football team win.
 - 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. Ultimately, informed decisionmaking is about considering the alternatives and making the best choice.
10. 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, the three friends chose to go to the football game because it met all three criteria. Staying home and having food delivered met two of the three criteria, making it the next-best alternative. Therefore, the opportunity cost of going to the football game is the next best alternative, which was staying home and having food delivered. 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!
11. Tell 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.*)

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- 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.*)
12. 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.*)
13. Display *Visual 1B.1: Smoke or Be a Millionaire* or slide 7. 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 \$9.16 per pack), a person saved that amount and invested it at a 9 percent annual return and continued to do so until age 62 (a popular retirement age). This person would end up a millionaire by age 57 (and lower their risk of dying earlier) just by not smoking. Discuss the following:
- How much is deposited per year? (*\$3,343.40*)
 - After 45 years (age 62), how much money has been deposited? (*\$150,453.00*)
 - How much money is in the account at age 62, after 45 years of saving? (*\$1,607,703.09*)
 - Where did the \$1,457,250.00 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. Explain that the exercise uses a 9 percent annual return which is consistent with average stock market returns over long periods of time. Tell students that the stock market does not pay interest, but the compounding effect is the same.
 - The “Annual deposit” column represents the money saved and deposited in the account. The “Annual return” column represents the amount of return the account earns per year. At what age does the earned return contribute more annually to the account than the saver does? (*At age 27, the saver earns \$3,918.11 in interest, which is more than the \$3,343.40 deposited.*)
 - How much return does the account generate the year the saver is age 62? (*\$144,892.79*)
 - 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 and larger to make it a good choice.
 - Consider the opportunity cost of a \$7.00 latte every day. If you saved the money instead, at a 9 percent interest rate, you could also be a millionaire at 62!

Making Personal Finance Decisions

Closure

14. 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 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

15. Distribute a second copy of *Handout 1B.1: PACED Decisionmaking Grid* to each student and direct them to follow the directions below. Allow time for students to work (or assign as homework).

Directions: Navigate to the Bureau of Labor and Statistics Occupational Outlook Handbook website at <https://www.bls.gov/ooh>. Search various careers using the provided links, or using a keyword search. Use the information on the website to complete the PACED decisionmaking grid: (i) find four careers that interest you (your alternatives), (ii) determine the criteria important to you in choosing a career (for example, you might consider education requirements, median pay, job outlook, or work environment); and (iii) decide which option is best. Write a paragraph describing the process you used to make your decision.

16. 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.*)

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Handout 1B.1: PACED Decisionmaking Grid

Step 1: P—Define the **P**roblem. Why must you make a choice?

Step 2: A—List the **A**lternatives. What are your possible options?

Step 3: C—Determine the **C**riteria. What standards are important to you?

Step 4: E—Evaluate the **A**lternatives. How well does each alternative meet each criterion?

Step 5: D—Make the **D**ecision. Which option has the most favorable trade-offs?

Criteria \ Alternatives	1.	2.	3.	4.
1.				
2.				
3.				
4.				

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Handout 1B.2: PACED What to Do on a Friday Night**Part A:**

Directions: Read the story below and identify the information needed to complete a PACED decisionmaking grid. Do the following:

- a. Underline the friends' alternatives for Friday night.
- b. Circle the criteria that each alternative must meet.

Story

While having lunch on Thursday at school, three friends—Cameron, Kendall, and Dylan—discuss what they want to do on Friday night before their 10pm curfew.

Cameron loves to stay home and suggests staying in and having food delivered. It would be about \$25 per person to order in.

Kendall thinks staying in on a Friday night is boring. She's excited about the latest action movie and suggests they go to the movies instead. The closest theater is about 30 minutes away. Tickets are \$12 and food will be \$15 per person. However, the movie is 2.5 hours long and the only show with tickets available starts at 8pm.

Dylan excitedly tells his friends that their school football game is Friday night. They all enjoy rooting for their home team, and this time the team will be playing their main rivals. Tickets cost \$5 and food costs \$10 per person. The game starts at 7pm and lasts about 2 hours, and the school is within walking distance of their neighborhood. Dylan tells his friends he only has \$20 to spend on Friday evening, and he has already seen the action movie with his family.

All three friends agree that they want to do something that everyone will enjoy.

Part B:

Directions: Using the underlined alternatives and circled criteria in the story, complete Handout 1B.1: PACED Decision-making Grid:

1.
 - a. Write each alternative in a separate cell in the column labeled Alternatives.
 - b. Write each criterion in a separate cell on the row labeled Criteria.
 - c. Based on each criterion, evaluate each alternative. If the alternative satisfies the criterion, enter a plus sign (+) in the appropriate cell, a minus sign (–) if it does not, or a question mark (?) if you are unsure.
2. Based on the PACED grid, what should the three friends do on Friday night?
3. Based on the PACED decisionmaking process, why is this decision the best choice for the three friends?

Making Personal Finance Decisions

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

\$9.16 × 365 days = \$3,340.40 per year						
	Annual saving (\$)	Total deposits (\$)	Balance plus 9% return (\$)	Year-end balance (\$)	Annual return (\$)	Total Investment return (\$)
18	3,343.40	3,343.40	—	3,343.40	—	—
19	3,343.40	6,686.80	3,644.31	6,987.71	300.91	300.91
20	3,343.40	10,030.20	7,616.60	10,960.00	628.89	929.80
21	3,343.40	13,373.60	11,946.40	15,289.80	986.40	1,916.20
22	3,343.40	16,717.00	16,665.88	20,009.28	1,376.08	3,292.28
23	3,343.40	20,060.40	21,810.12	25,153.52	1,800.84	5,093.12
24	3,343.40	23,403.80	27,417.33	30,760.73	2,263.82	7,356.93
25	3,343.40	26,747.20	33,529.20	36,872.60	2,768.47	10,125.40
26	3,343.40	30,090.60	40,191.13	43,534.53	3,318.53	13,443.93
27	3,343.40	33,434.00	47,452.64	50,796.04	3,918.11	17,362.04
28	3,343.40	36,777.40	55,367.68	58,711.08	4,571.64	21,933.68
29	3,343.40	40,120.80	63,995.08	67,338.48	5,284.00	27,217.68
30	3,343.40	43,464.20	73,398.95	76,742.35	6,060.46	33,278.15
31	3,343.40	46,807.60	83,649.16	86,992.56	6,906.81	40,184.96
32	3,343.40	50,151.00	94,821.89	98,165.29	7,829.33	48,014.29
33	3,343.40	53,494.40	107,000.16	110,343.56	8,834.88	56,849.16
34	3,343.40	56,837.80	120,274.48	123,617.88	9,930.92	66,780.08
35	3,343.40	60,181.20	134,743.49	138,086.89	11,125.61	77,905.69
36	3,343.40	63,524.60	150,514.71	153,858.11	12,427.82	90,333.51
37	3,343.40	66,868.00	167,705.34	171,048.74	13,847.23	104,180.74
38	3,343.40	70,211.40	186,443.13	189,786.53	15,394.39	119,575.13
39	3,343.40	73,554.80	206,867.32	210,210.72	17,080.79	136,655.92
40	3,343.40	76,898.20	229,129.68	232,473.08	18,918.96	155,574.88
41	3,343.40	80,241.60	253,395.66	256,739.06	20,922.58	176,497.46
42	3,343.40	83,585.00	279,845.58	283,188.98	23,106.52	199,603.98
43	3,343.40	86,928.40	308,675.98	312,019.38	25,487.01	225,090.98
44	3,343.40	90,271.80	340,101.13	343,444.53	28,081.74	253,172.73
45	3,343.40	93,615.20	374,354.54	377,697.94	30,910.01	284,082.74
46	3,343.40	96,958.60	411,690.75	415,034.15	33,992.81	318,075.55
47	3,343.40	100,302.00	452,387.22	455,730.62	37,353.07	355,428.62
48	3,343.40	103,645.40	496,746.38	500,089.78	41,015.76	396,444.38
49	3,343.40	106,988.80	545,097.86	548,441.26	45,008.08	441,452.46
50	3,343.40	110,332.20	597,800.97	601,144.37	49,359.71	490,812.17
51	3,343.40	113,675.60	655,247.37	658,590.77	54,102.99	544,915.17
52	3,343.40	117,019.00	717,863.94	721,207.34	59,273.17	604,188.34
53	3,343.40	120,362.40	786,116.00	789,459.40	64,908.66	669,097.00
54	3,343.40	123,705.80	860,510.74	863,854.14	71,051.35	740,148.34
55	3,343.40	127,049.20	941,601.02	944,944.42	77,746.87	817,895.22
56	3,343.40	130,392.60	1,029,989.41	1,033,332.81	85,045.00	902,940.21
57	3,343.40	133,736.00	1,126,332.77	1,129,676.17	92,999.95	995,940.17
58	3,343.40	137,079.40	1,231,347.02	1,234,690.42	101,670.86	1,097,611.02
59	3,343.40	140,422.80	1,345,812.56	1,349,155.96	111,122.14	1,208,733.16
60	3,343.40	143,766.20	1,470,580.00	1,473,923.40	121,424.04	1,330,157.20
61	3,343.40	147,109.60	1,606,576.50	1,609,919.90	132,653.11	1,462,810.30
62	3,343.40	150,453.00	1,754,812.69	1,758,156.09	144,892.79	1,607,703.09

NOTE: As of May 27, 2024, the average price of cigarettes was \$9.16 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 May 27, 2024.

Stock return average: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html, accessed May 27, 2024.

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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.

- **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.

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