

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. 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

Making Personal Finance Decisions

©2019, Minnesota Council on Economic Education. Developed in partnership with the Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Minnesota Council on Economic Education.

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
-

Making Personal Finance Decisions

©2019, Minnesota Council on Economic Education. Developed in partnership with the Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Minnesota Council on Economic Education.

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.*)

Making Personal Finance Decisions

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.*)

Making Personal Finance Decisions

- 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

Making Personal Finance Decisions

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.*)

Making Personal Finance Decisions

Visual 1B.1: PACED Decisionmaking Model**Step 1: P—Define the Problem.**

Why must you make a choice?

Step 2: A—List the Alternatives.

What are your possible options?

Step 3: C—Determine the Criteria.

What standards are important to you?

Step 4: E—Evaluate the Alternatives.

How well does each alternative meet each criterion?

Step 5: D—Make the Decision.

Which option has the most favorable trade-offs?

Making Personal Finance Decisions

©2019, Minnesota Council on Economic Education. Developed in partnership with the Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Minnesota Council on Economic Education.

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

©2019, Minnesota Council on Economic Education. Developed in partnership with the Federal Reserve Bank of St. Louis. Permission is granted to reprint or photocopy this lesson in its entirety for educational purposes, provided the user credits the Minnesota Council on Economic Education.

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), (ii) 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	1.	2.	3.	4.
Alternatives				
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.

Making Personal Finance Decisions