Beyond the Bet: Weighing Gambling Risks

Lesson Author

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Standards and Benchmarks (see page 14)

Lesson Description

In this lesson, students will participate in a gambling simulation by pulling one piece of candy-coated chocolate from a bag and having payoffs depend on the color. The goal is for students to examine their probability of success while making choices about continuing the simulation. Students will better understand their money personality and how it may impact the decisions they make if/when gambling. Gambling has implications for teaching both economics and personal finance.

Economics

Economics is the study of choices. With gambling there are many choices: Do you gamble at all? How much do you gamble? Why do you gamble? When do you stop gambling? Gambling can pose a substantial amount of risk, and understanding the expected payoffs or house edge on various games can alter the decisions people make if/when gambling.

Personal Finance

Gambling is inherently risky. There are very few ways to mitigate the risk in gambling, and because of the house edge there is a greater chance of losing money than making money. Therefore, it's important to understand the risks related to various gambling games. Failure to control gambling can turn into substantial financial loss and can even lead to mental instability. Understanding the probability of success within games will help someone who gambles examine the financial choices they make, including their personal reasons for gambling.

Grade Level

9-12

Concepts

Decisionmaking

Gambling

Risk and return

Objectives

Students will be able to

- describe the risks and expected losses of gambling, and

- evaluate how their financial or money personalities may affect their willingness to gamble.

Compelling Question

Why do people continue to gamble even when they know the odds are against them?

Time Required

60 minutes

Materials

- PowerPoint slide deck

- Handout 1, approximately 10-15 copies cut apart (Alternatively, omit altogether and just use Handout 2. The play money adds a layer of fun and intensity but is not necessary for the lesson).

- Handouts 2 and 4, one copy of each for each student

- Handout 3, one copy cut apart

- One small, desirable prize for winning student in each group of 3-4 students (e.g., extra credit, bragging rights, candy bar, fidget toy, etc.)

- Fun-sized bags of candy-coated chocolates, one for each student (Alternatively, could use a large bag of candies and put them into cups; the idea is that students are selecting the candy without looking. Could also use a die or a spinning wheel like the one at https://spinthewheel.app/mms-33kip#google_vignette.)

- Device with internet capacity for each student

Procedure

1. Display slide 1 from the "Beyond the Bet: Weighing Gambling Risks" PowerPoint deck. Tell students that they are going to play a game and that the person in each group with the most play money at the end of it is going to win a prize. Show and/or tell students what the prize is.

2. Put students into groups of 3-4. (Teacher Note: Groups allow students to know how some of their peers are doing, which could affect the risks they are willing to take. The students will act independently and compete against everyone in the room, but this would simulate gambling in a situation like blackjack, craps, or even slot machines, where they are independent but reacting to their peers/situations around them.)

3. Distribute each of the following items to every student:

    • $10 in play money (from either *Handout 1: Play Money* or a board game)

    • One copy of *Handout 2: Money Ledger*

    • One fun-sized bag of candy-coated chocolates—instruct students to not open or eat these yet

4. Put a small pile of $10 play money in the middle of each group. This is going to be a pile they can pull money from or put money back into throughout the game. Tell students that the money is not theirs but just meant to allow them to pay themselves during the activity. Tell them to raise their hand and ask for more if the pile gets too low, and walk around and refill the piles as needed during the activity.

5. Display slide 2 to provide students with instructions for the game. Tell students that they are going to take turns pulling one piece of candy from their bag for the peer on their left (working clockwise). They are to do this without looking. The selected candy is going to represent money that the peer will win or lose. Students will fill out Handout 2 based on the color of the candy that was drawn for them and collect or put back the amount shown. If they go negative, they will just keep track of the negative amount on their handouts and will only pull money when they reach positive numbers. (Teacher Note: The goal is to take turns pulling out candies and drawing for someone else.)

6. Display slide 3, which has the following play-money breakdown of candy-coated chocolates:

Candy colors	Payout
Brown	+$0
Blue	+$20
Orange	−$10
Yellow	+$100
Green	−$40
Red	−$60

7. Display slide 4 and walk students through the example. Suppose on the first draw your peer pulls out a green piece of candy. On your ledger you would write "Green" in the first column, "–$40" in the second column, and "–$30" in the last column ($10 start-up money minus $40). You would also put all your money into the play-money pile.

8. Display slide 5. Remind students that their goal is to win the most play money during the game and that at any point they can stop, which means they will stick with the amount they have. <u>IMPORTANT: Once students stop, they cannot re-enter the game.</u> Tell students you will call "time" when the game is over, and whoever has the most money at that point will win the prize. If students ask how much time they will have, tell them it is your decision but that there is a set time.

9. Tell the groups to begin: The student with the next-closest birthday starts by drawing a candy-coated chocolate for the person to their left; each student takes a turn one at time, moving clock-wise. Turns cannot move on until each ledger is filled in with the color of the candy drawn, the payout, and the balance. (Teacher Note: Allow students to go several rounds but feel free to be flexible with how much time you give them—probably about 3-6 minutes. Watch their ledgers to see if students are winning money. Be sure to cheer on those students who are winning. Emphatically encourage students who are losing and tell them they still have time to win more money and to not give up! During the debrief, you will talk through this as part of the psychology of money and how this may have impacted their willingness to gamble.)

10. Call "time" and ensure everyone stops. Some may have already stopped.

11. Display slide 6 and discuss the following:
    - With a show of hands, who won money? (*Answers will vary*.)
    - With a show of hands, who lost money? (*Answers will vary*.)
    - Was this fun? Why? (*Answers will vary but may include that some students had fun because they were making money or that it was fun seeing what candy colors each student got. Others may say the game was not fun because they lost money. Some may even say it was not fun because they did not like the chance or uncertainty of the game.*)
    - How many of you kept playing even though some were losing money? Why? (*Answers will vary but may include that they wanted to try to get ahead and start winning money or that they were seeing their peers winning money or getting excited and wanted to keep trying. Some may also say that you as the teacher encouraged them to keep going. Students who were winning money may have wanted to keep winning.*)

12. Explain to students that they were playing a game where there was a possibility of winning money but also the possibility of losing money and that this is a core feature of gambling. Display slide 7 and define **gambling** as risking money on the chance of winning more money. Gambling involves a lot of decisionmaking; you need to decide whether you want to gamble, what game you might

play, how much you are willing to spend or wager, when to stop, etc. Remind students that economics is the study of choices; because of all the choices that come from participating in gambling, it's especially important to understand economics when thinking about gambling.

13. Display slide 8 and tell students that in 2023, Nevada's statewide gross gaming revenue—the money the state earned in a year from gambling—was $15.52 billion! (See https://www.statista.com/statistics/187926/gross-gaming-revenue-by-state-us/.) Explain that this amount of revenue is massive and ask students, "How can there be so much revenue from gambling?" (*Answers will vary but may include that there are a lot of people who go to Las Vegas and gamble or risk their money. Some students may say that in Las Vegas [and at other casinos] the house always wins*.)

14. Explain that Las Vegas is widely known for gambling but that there are other smaller locations or one-off casinos around the country (and world) where people can gamble, and they all have similar stories—the casinos are making a lot of revenue. Ask students, "Why do you think this is the case?" (*Answers will vary but eventually should get to the fact that for most games in gambling, the chance of a person losing is greater than their chance of winning*.)

15. Explain that all games at a casino have a house edge, also known as a casino advantage. Display slide 9 and define **house edge** as the average gross profit a casino can expect to make. It's not set by the casino but based on the games themselves. This means that games at a casino are designed so that, in general, the casino will make money while the people playing the games will lose money.

16. Display slide 10 to help describe and clarify what a house edge is. Describe to students that Hold 'em (aka Texas Hold 'em) is a type of poker game where players are dealt two cards face down and then combine them with five community cards dealt face up in the middle of the table to create the best five-card hand. The house edge is approximately 2.36%, which means that for every $100 you spend on Hold 'em you can expect to lose about 2.36%, or $2.36.

17. Ask for seven volunteers. Tell students that different games have different house edges based on the rules and structure of the game. Distribute a different type of casino game card from *Handout 3: Casino Games and Descriptions* to each volunteer. Invite the student with Hold 'em to stand in the middle of the front of the classroom. Next, invite each of the other volunteers to come up and read their casino game name and the description. Instruct each student to stand to the right or left of the student with Hold 'em based on if they think that game has a higher or lower house edge. And, while students might not know much about how these games are played, ask that they make their best guess. After each student makes their guess, reveal the actual house edges by clicking through slides 11-16, and instruct the volunteers to begin to stand in the correct order. After you've clicked through all seven slides, students will be lined up in order of highest to lowest house edge at the front of the room. (*Order from highest to lowest house edge is Keno, Craps, Slots, American Roulette, Hold 'em, Blackjack, Video Poker*).

18. Volunteers should give back their game cards and return to their seats. Display slide 17 (https://www.casino.org/features/house-edge/) and ask students, "What do you notice about the house edges?" (*There is a wide range, but the house always has an edge. Students may also take note of how large the edge is in some instances, such as Keno, which has a 20-40% house edge.*) Explain that the house/casino always wins because of the house edge. There is always a house edge for every table game, lottery, and slot machine, whether it's online or in-person. Note that these are just a few more well-known games and that there are many other games, which all have a house edge as well.

19. Ask students, "If there is always a house edge, then how do some people win?" (*The house edge is an average loss. There can be winners, although much of that depends on luck, timing of the game, and even timing of leaving the game. The longer someone plays, the greater their chances of losing, which is why casinos do their best to keep you playing. Discuss with students that they may have tried some tactics in the candy game to keep students playing longer and pulling out more candies.*)

20. Optional: Students could calculate the expected value of winning in the candy game. Note that, for simplicity, the probability for each candy color is 1/6 = 0.16667. Display slide 18 and explain that the house edge for the candy game they played was –$3.33. This means that, on average, students could expect to lose a little over $3. However, be sure to note that this is an average, which means that people often do much worse than that and lose well beyond the $3. Ask, "With a show of hands, how many of you lost more than $3 in the game? How much did you lose?" (*Answers will vary.*) Be sure to point out the numbers the students are stating, as they can be large negative numbers. You can also try to make it seem realistic and talk to students about actually losing that amount of money: This was a silly game with play money, but this can easily happen with real money, as we will show later.

21. Display slide 19 and discuss the following:

    • What is your reaction to learning about the house edge? (*Answers will vary. Students will likely not be surprised that there is a house edge, but they may be surprised at how large the house edge is in some instances.*)

    • Does knowing the house edge change your decisionmaking? (*Answers will vary, but students may agree or disagree. Some may make a point that if they were winning at all they may stop, while others may not care, because they still have a chance of winning.*)

    • If we know about the house edge and that you are more likely to lose money when you gamble, why do you think so many people gamble in Las Vegas and other casinos? (*Answers will vary but may include that gambling is a form of entertainment, there may be people who do not understand the house advantage, or there may be people who have an addiction to gambling and less control over those behaviors.*)

22. Remind students that gambling is risking money on the chance of winning more money. Display slide 20 and explain that **problem gambling** is when gambling interferes with everyday life; that is, gambling more than you have; experiencing feelings of remorse, compulsivity, or being out of control; or when others question your gambling.

23. Explain that gambling can be a source of entertainment but can also become problematic, which can cause major financial and personal issues. Throughout the country there are organizations that assist people who feel like their gambling has become a problem. For example, in Nebraska there is the Nebraska Problem Gamblers Assistance Program. (Teacher Note: You may want to research a similar organization for your state to add here.) Gambling can become addictive (much like drugs or alcohol), and these organizations use various treatment and prevention services to help people who suffer from a gambling addiction.

24. Display slide 21, which shows some facts from the Nebraska Problem Gamblers Assistance Program's 2022-23 New Client Data annual report (https://problemgambling.nebraska.gov/storage/link_list_files/NPGAP-Gambler-Intake-Data---Helpline-Urgent-Calls---FY2023---draft-8-11-2023.pdf). Tell students that the data are from Nebraska but are likely similar to the rest of the country. Note that this information is only from people seeking help; there are likely many people who gamble (either recreationally or with an addiction) who are not accounted for in the information.

25. Display slide 22, which shows a positive outcome of the Nebraska Problem Gamblers Assistance Program; that is, 85% of clients report decreasing their gambling behavior after counseling commenced.

Closure

26. Close the lesson by reiterating that gambling is risking money on the chance of winning more money. Display slide 23 and discuss the following:

    • What does it mean to have a house edge? (*It means that statistically, the house will win, although the house edge varies depending on the game and the amount of strategy or chance involved*.)

    • Does this mean everyone loses? (*No*)

    • Does the house edge mean that gambling is bad? (*Answers will vary, as some students may say yes and others no. Students should talk about understanding the risks associated with gambling and having a plan about how much they are willing to lose; that is, go to Las Vegas willing to spend only $100 on gambling, and when that money is gone it is gone. Others may say they do not like gambling or that it is not fun*.)

    • Why do people gamble even if they know they can (and likely will) lose money? (*Answers will vary but may include that they are doing it for entertainment, there may be people who do not understand the house advantage, or there may be people who have an addiction to gambling and less control over those behaviors*.)
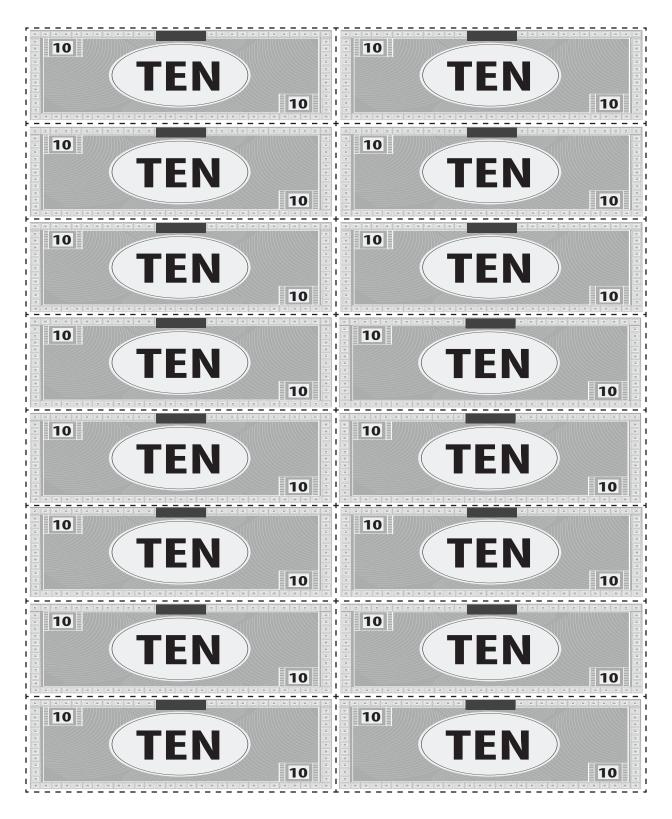
Assessment

27. Distribute a copy of *Handout 4: Assessment* to each student. Display slide 24 with the instructions. Provide class time for them to complete the assessment or assign it as homework.

Additional Suggested Assessment Items

1. Economists define utility as the satisfaction or pleasure someone gets from consuming a good or service. Which of the following best explains why someone may gamble even though they know the "house always wins"?

   a. There is no utility for gambling, especially if you lose.

   b. The utility from gambling occurs only if you win money.

   c. *People get utility from playing the games, win or lose.*

   d. People play to win, not for utility.

2. What choice might be made by someone who is a problem gambler versus someone who gambles occasionally?

   a. *A problem gambler spends their rent money to play blackjack.*

   b. Someone who gambles goes to the casino only once a year, and someone with a gambling problem chooses to go monthly.

   c. A problem gambler chooses to stop when they spend the $20 they budgeted for gambling.

   d. Someone who gambles only plays games with no house edge.

3. Economists define utility as the satisfaction or pleasure someone gets from consuming a good or service. In a few sentences, use the term utility to explain why someone would or would not choose to gamble.

   (Answers will vary.)

Handout 1: Play Money

Handout 2: Money Ledger

Candy colors	Payout
Brown	+$0
Blue	+$20
Orange	−$10
Yellow	+$100
Green	−$40
Red	−$60

Candy color	Money +/−	Current balance
		$10
Grand total balance:		**$**

Handout 3: Casino Games and Descriptions (page 1 of 2)

Hold 'em

A type of poker game where players are dealt two cards face down and then combine them with five community cards dealt face up in the middle of the table to create the best five-card hand.

American Roulette

A casino game of chance where players bet on where a small ball will land on a spinning wheel divided into numbered and colored slots.

Blackjack

A gambling game in which the object is to obtain from the dealer cards whose values add up to, or close to, 21 but do not exceed it.

Craps

A dice game in which players bet on the outcomes of the roll of a pair of dice: Players can wager money against a bank in a casino. A player wins the bet if 7 or 11 is thrown first and loses if 2, 3, or 12 is thrown. Any other number that rolls becomes the "point," and the point must roll again before a 7 to win.

Handout 3: Casino Games and Descriptions (page 2 of 2)

Keno

A gambling game played using cards or tickets with numbers usually from 1-80: Player marks as many of these numbers as they want, up to a permitted maximum. Then the player turns in the card to register it. They win based on how many of the numbers they selected were randomly drawn by a computer.

Slots

Also known as a slot machine or gaming machine: It is a gambling device featuring spinning reels adorned with various symbols. The goal is to line up pre-determined symbols across the paylines to win prizes.

Video Poker

An electronic card game based on five-card draw poker that is played on a console liminal similar to a slot machine.

Handout 4: Assessment

How does "money personality" affect gambling?

1. Navigate to the following website: Nerdwallet's "What's Your Money
    Personality? Take Our Quiz to Find Out"
    https://www.nerdwallet.com/article/finance/money-personality

2. What breakdown did you have of each of the four common attitudes toward money?

Money personality	Count
Money worship	
Money avoidance	
Money vigilance	
Money status	

3. How did your money personality impact the way you played the candy game? Can you think of another example in your life where your money personality influences your choices?

4. Do you think people who gamble tend to have a certain type of money personality? What about people who may be problem gamblers? Explain.

5. In what ways has this lesson affected your personal views on gambling and why?

Standards and Benchmarks

Voluntary National Content Standards in Economics

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 8**

  4. Many people have a tendency to be impatient, choosing immediate consumption over saving for the future.

- **Benchmarks: Grade 12**

  6. Some decisions involve taking risks in that either the benefits or the costs could be uncertain. Risk taking carries a cost. When risk is present, the costs should be treated as higher than when risk is not present.

National Standards for Personal Financial Education

Standard VI: Managing Risk

People are exposed to personal risks that can result in lost income, assets, health, life, or identity. They can choose to manage those risks by accepting, reducing, or transferring them to others.

- **Benchmarks: Grade 12**

  1. People vary with respect to their willingness to accept risk and in how much they are willing to pay for insurance that will allow them to minimize future financial loss.