

## **Title of Lesson: Auction off a Dollar**

**Subject Area: Economics**

**Concept: sunk cost and marginal analysis**

**Grade Level: 12**

**Lesson Duration: 15-20 minutes**

**Objectives:** (What will students be able to do at the conclusion of this lesson?)

1. Students will be able to understand the concept of a sunk cost and marginal analysis.
2. Students will be able to experience an auction.
3. Students will be better economic decision makers as a result the lesson.

### **Materials and Resources:**

one dollar bill

### **Description and Procedure:**

The students will engage in an auction for a dollar. It will follow normal auction procedures. The only stipulation is that the student who makes the next to last bid must pay the amount they bid for. This is used to illustrate the economic concept of a sunk cost. The cost that has incurred is in the past. One cant factor a sunk cost into a new economic decision.

The teacher begins by opening the bidding in increments of five cents. Students indicate a bid by raising their hand. The teacher acknowledges the student that raises his/her hand first. Bidding goes as far as the students are willing to bid.

When the bid goes to a dollar for a dollar, the next to last person bidding has the incentive to keep it going in order to minimize his/her cost. For example, the student who bids at .95 cents and is before whoever bids a dollar for a dollar will lose the .95 cents unless he goes and bids \$1.05 for a dollar. Then both students play tit-for-tat in the hope that each will be the last bid for the dollar.

The teacher points out the examples of paying for a meal, going home to eat it, and cant because it is repugnant and too difficult to eat. For those who pay for a movie and after 30 minutes find themselves walking out because they cant stay another minute, they too experience a sunk cost. The payment is gone. They cant factor the loss of what they paid for into a new economic decision.

Some classes have bid all the way up to ten and fifteen dollars. On average most classes have students bidding up to about two to three dollars. The student who made the last bid trades his bid with the dollar. The student who made the next to last bid pays his bid and receives nothing.

**Debrief** the students on the incentives at work, the meaning of sunk costs, and what lessons came from the lesson. You have no control over sunk costs so they are not part of the decision-making process. Use marginal analysis to make a new economic decision about the future is better than factoring in an old economic decision already made.

A PowerPoint on sunk costs and marginal analysis will follow the activity.

## Sunk Costs & Marginal Analysis in the classroom

**Definition:** Sunk-costs are costs that cannot be recovered once they have been incurred, or “We’ve come this far; there’s no turning back.”

**Question:** Is it rational or irrational to ask, “*I can’t stop now, otherwise what I’ve invested so far will be lost?*” The real question is should they be ignored?

### **Prospect Theory:**

- States that people are inherently loss averse
- People weigh losses twice as much as heavily as gains
  - a loss of \$1 is twice as painful as a gain of \$1 .
  - the combination of a non-neutral reference point and loss aversion is what leads to irrational behavior

### **Examples:**

1. The Concorde –
  - The sunk cost fallacy is also sometimes referred to as the Concorde Fallacy, after the method of funding the supersonic transport jet jointly created by the governments of France and Britain. Today the Concorde is not operational. But when it was flying, despite the fact that the Concorde was beautiful and as safe as any other jet transport, it was very costly to produce and suffered some major marketing problems. There weren't many orders for the plane. Even though it was apparent there was no way this machine would make anybody any money, France and England kept investing deeper and deeper on the grounds that they had already invested a lot of money.
  - The crash of Air France 4590 on July 25, 2000, that killed 113 people --- even though it was due to a freak accident and not a design flaw--- put an end to any hope that anyone might have had for further development of the Concorde.
2. LBJ in Vietnam -
  - It is now known that Lyndon Johnson kept committing thousands and thousands of U.S. soldiers to Vietnam after he had determined that the cause was hopeless and that the U.S. would not win the war.
3. President Bush’s Iraq policy –
  - George W. Bush continued to argue that thousands more soldiers and billions more dollars be committed to the war on Iraq, despite the fact that the majority of his generals, his senators and congressmen, and the American public did not think the U.S. should invest any more in the war.
  - Bush offered several reasons for staying the course. One of them was revealed when there were 2,000 Americans who had already died in the war. He said: “We owe them something. We will finish the task that they gave their lives for.”
  - Staying the course in Iraq militarily required a sober analysis and factoring in the loss of lives and funds was a classic example of valuing past decision making more than the future consequences. To acknowledge sunk costs and change course need not be an admission of foolishness or even failure.
  - Just how do we honor the sacrifices of those who have died or suffered serious injury in an American conflict? The best way to show how much we respect and value their lives is by refraining from sacrificing other lives in their name unless future prospects fully justify putting more people in harm’s way. The lives of those who died are a sunk cost --- one that is much higher than any of our treasure. But their lives can not be reclaimed. Their injuries can not be undone. If our assessment of a military situation is that we are unlikely to be successful, or that the likely price of success in lost lives is too high, then we must change course. What we owe to those who have already suffered is enough reverence for life that we won't send others to suffer after them in order to justify their own suffering.

- It is harder to quit a war after incurring 3,600 dead and tens of thousands wounded, and spending the better part of a trillion dollars in a failed effort. The correct way to think about whether or not to proceed is to weigh the costs and benefits from pressing on from this point forward. Our country may be divided on the issues, but we owe it to those who may yet be called to make the ultimate sacrifice to properly count our costs.
4. F-22 –
    - When the F-22 began development in 1986, the Air Force projected a unit cost of \$86 million. 18 years later, the unit cost is almost \$300 million, and the plane is not yet in service. The U.S. taxpayer has “invested” so \$41 billion to date and still not received any discernible dividend after more than two decades.
    - With the Berlin Wall falling, the F-22 became another extravagant relic of a certain age of industrial warfare. Then the bombing of the World Trade Center in 1993 out to have demonstrated the misplaced priority of shoveling tens of billions of dollars into cold war bric-a-brac like the F-22. With Al-Qaeda posing a real and immediate to the national security of the U.S., the real question here is what fraction of the F-22’s \$41 billion could have bought improved intelligence collection on Al-Qaeda, more Arabic language translators, or improved border protection and immigration control?
  5. NBA Draft –
    - The NBA offers insight into sunk costs. Because higher draft picks cost the team’s more money, both their greater playing playing time and career longevity are examples of high sunk costs.
  6. Subway –
    - You waited for the subway and extra 20 minutes instead of just walking because you have already waited for 20 minutes.
  7. Poker –
    - Think of the countless people playing Texas hold ‘em. You bet on your hand as it exists at the moment and its potential for the future. Many people will stay in because they are “pot committed” --- they figure they have already risked so much to be in the game that it cant hurt to bet a little more.
  8. DMV –
    - At the DMV the psychology there goes like this: “The more time I have invested, the less likely I am to leave, regardless of how much longer we still have to wait and regardless of whether we could spend that time more profitably and come back another day.” This is stubbornness and the sunk cost phenomenon at work.
  9. Stock Market –
    - It is common for people who have invested in company shares to hold on tight to them as the market slumps, in the desperate hope that the shares will rise in price again. When thinking of pulling out of something, focus on future costs and benefits rather than past investment.
  10. A Nasty Storm –
    - There is a nasty storm and you have bought tickets to the basketball game which is an hour away? Should you stay home and watch it on TV?
  11. Toilet –
    - Should you repair the toilet after trying to fix it or buy a new one?
  12. Pasta –
    - You ordered too much food at the restaurant and you cant take it with you. Should you eat the pile of pasta or let it go?
  13. Pie –
    - How many times have you eaten that last slice of pie even though you were really incredibly full because you already heated up the whole thing and you didn’t want to throw it away?
  14. No Surf –
    - What is the marginal benefit of staying in the ocean for the next 6 hours?

15. A Terrible Movie –

- What is the marginal benefit of staying there for the next two hours?

16. A Horrible Marriage –

- What is the marginal benefit of staying with the bum for the next 50 years?

17. Litmus Tests –

- Scenario 1: You bought a \$10 non-refundable ticket to a show (and note that you definitely would not have done so if you if the show cost \$20). As you get to the theater you realize you lost your ticket. Luckily, they have more available, still at \$10. Do you buy another ticket?
- Scenario 2: You didn't buy a ticket ahead of time. As you get to the theater you realize that \$10 has fallen out of your pocket and is lost. Luckily, you still have enough to buy a ticket. Do you do so?

18. Land Development –

- Choose between two pieces of land.
  - One you bought for \$1,000,000.
  - One you paid \$10,000.
- Question: On which one should you develop a gas station?
- The one that's right next to the huge subdivision being put up, not the one next to the condemned shopping center.
  - a. Does it matter how much the land cost to buy? No. Not at all.

19. Bruce Springsteen Dilemma –

- You have 2 tickets to the Springsteen concert. They were really hard to get. You spent 4 hours surfing the net before you found the perfect seats for \$55 each.
- On your way into the event, a guy offers you \$500 cash for each ticket. Should you sell?
- It turns out the amount of time you spent getting the tickets is irrelevant. If you wouldn't be willing to PAY \$500 for these tickets, then you should be willing to sell them for \$500.
- If you go to the concert instead of selling, the seats are now \$500.

20. Misspelt Sign –

- Just because the city spent a lot on the sign doesn't mean they shouldn't spend more to spell the words correctly. The amount they already spent is irrelevant. What matters is what the benefit of spelling the sign correctly will be.

\*\*\* In each of these cases, the investment is gone. Do you “waste” it, or do you go to the game, keep working on the toilet, and finish the pasta? The best approach like these is to look to the future. Since the money is spent no matter what you do, the only real question you should be asking is what will give you more satisfaction --- watching the game be a roaring fire or dangerously maneuvering to it in the storm; leaving the restaurant feeling content of leaving it stuffed. The sunk costs a sunk whatever your decision; only the future matters. The fallacy in thinking about sunk costs is precisely that people feel compelled to get their “money's worth,” even if it makes them suffer.

\*\*\* You have no control over sunk costs so they are not part of the decision-making process. Use marginal analysis to make a new economic decision about the future is better than factoring in an old economic decision already made.

\*\*\* Ask your students to use marginal analysis when they make decisions such as:

- How should I spend the next hour?
- How should I spend the next dollar?

**Varying Objectives for Individual Needs**

How will I vary these objectives for students who:

a.) Don't Understand?

b.) Have already mastered the concept?

c.) Are presently learning English?

### **Reflective Action Procedures:**

1. *Pre-assessment:* (How will I find out what students already know about this topic)
2. *Motivation:* (What will I do to make a connection between students and this topic?)
3. *Statement of Purpose:* (What will I say to explain the importance of learning this lesson?)
4. *Teacher Modeling or Demonstration:* (What will I do to show students what is expected?)
5. *Guided Practice:* (What will we do together as they learn how to succeed at the new task?)
6. *Check for understanding:* (What will I ask to see if the students understand so far?)
7. *Independent Practice or Activity:* (What will you do on your own to internalize the knowledge?)
8. *Assessment:* (What will students do to demonstrate what they have learned)
9. *Closure:* (What will students be able to say or do to show what they learned?)

## **Sequencing Learning Experiences in Unit Plans**

1. Define the topics and subject matter to be covered in the unit.
2. Define the cognitive, process, and affective goals or outcomes that tell what students will gain and be able to do as a result.
3. Outline the major concepts that will be covered.

4. Gather resources that can be used in planning and teaching.
5. Brainstorm learning activities and experiences that can be used in the unit.
6. Organize the ideas and experiences that can be used in the unit.
7. Create lesson plans that follow the sequences.
8. Plan evaluation processes to measure student achievement and satisfaction.

# *Bloom's Taxonomy*

## *Higher-level objectives*

Level 6: evaluation

Level 5: synthesis

Level 4: analysis

Level 3: application

## *Lower level objectives*

Level 2: comprehension

Level 1: knowledge

# Planning Lessons For Active Learning

## Three Steps:

- **I do** (What I will do myself to model a desired action for my students)
- **We do** (how I will set up learning activity so students can the action the action with my help)
- **You do** (what the students will do to practice the action on their own.)