Do Terrorists Follow the Laws (of Supply and Demand)?

IMPORTANT: You can have several activities in 1 lesson. If you identify a resource (URL, File, Ed Tech Tool) in the procedure section, be sure to name the file or URL name within the <u>Materials and Preparation section</u> the same name as seen in the <u>Activities section</u>. Otherwise, we will not understand where the file or URL needs to be linked/uploaded. If we do not understand what you would like us to do, we will send the lesson plan back for clarification.

Objectives

Students will be able to:

- Explain how changes in supply and demand affect prices

- Describe how prices are determined in a market

- Analyze and interpret data

- Understand how changes in the price of productive inputs affect supply

Time

60-75 minutes

National Standards in Economics or Personal Finance

Markets and Prices: Market prices are determined through the buying and selling decisions made by buyers and sellers.

Role of Prices: Supply of a product changes when there are changes in either the prices of the productive resources used to make the product, the technology used to make the product, the profit opportunities available to producers from selling other products, or the number of sellers in a market.

Materials and Preparation Lesson Introduction

- Visual 2.1 – Regional Map of Iraq

- Visual 2.2 – EFP Visual Description

- Visual 2.3 – EFP damage Humvee

- Visual 2.4 – World Output Graph

- Visual 2.5 – Historical Copper Price Graph

- Visual 2.6 – Market for Copper Graph

- Visual 2.7 – Market for EFPs Graph

- Visual 2.8 – Copper Sales Record

- Visual 2.9 – Market for Copper Supply & Demand Graph

- Handout 2.1 – Copper Sales Ledger

- Handout 2.2 – Buy/Sell Cards

Introduction

When most people think of criminals or terrorists, we think of a group of people that disregard the law; it doesn't dictate their actions. Does this even apply to economic laws, such as supply and demand?

If we consider terrorist activities in Iraq (terrorists as defined by America), we can make note of the primary resources necessary to carry out their attacks. First of all, there is a need for human actors. If there were not people to emplace bombs, to shoot RPGs, or to transmit intelligence, there would be no enemy. This comes with a high opportunity cost. These people are usually giving up a life where the chances of being killed are very low, in order to participate in activities where the chances of being killed increase dramatically.

Another resource terrorists need are munitions. They need guns, ammunition, explosives, rockets, and all of the other materials needed to wage an insurgency. An extremely effective weapon that the insurgents in Iraq used are called EFPs or explosively formed projectiles. EFPs are made by fitting concave copper disks (imagine a cymbal) into cylinders made of steel or concrete and packing explosives behind them. When the explosives detonate, the concave disk is blown inside-out into a bullet shape, and the relatively low melting point of copper (1984 degrees Fahrenheit) allows it to become a molten bullet able to penetrate even our thickest armor.

EFPs are able to penetrate the M1 Abrams tank, and they can cut through both sides of an armored vehicle. With the effectiveness of these weapons in mind, and their relative ease to make and use, why haven't there been more EFP attacks? At the end of 2006 and into 2007, there were about 60-100 EFP attacks per month, while IED (improvised explosive devices) in general were used between 1000-1500 times per month throughout 2006 (Brookings). In the beginning of 2007, EFPs were used in only 2.5% of attacks, but were responsible for 15% of the casualties (LA Times, Cockburn).

As economies boomed around the world during the first half of the decade in the 2000s, copper prices skyrocketed. The prices reached a plateau between $3.50 and $4.00 per pound during the years from 2006-2008, which happened to coincide with the most intense fighting in Iraq.

The question remains, if EFPs were so effective, why would the insurgents not expand their use of it? Although wars are very complex events and the solutions are never simple, the answer to this question likely has a lot to do with the price of copper. The increasing costs to produce EFPs and wide availability of their less expensive substitute, the artillery shell-based IED, made it uneconomical to expand the usage of this deadly device even though it was more effective. This very reason was given during a classified intelligence briefing in 2006.

It appears that terrorists do succumb to the laws of supply and demand, and thankfully so, otherwise there may have been thousands of additional EFPs, potentially claiming the lives of many more of U.S. troops.

Activities

This lesson explores how the supply and demand for copper affects insurgent weapon selection. Insurgent fighters face trade-offs and opportunity costs like any other person. They also have limited resources and must make decisions based on the benefits and costs of each transaction. Weapon selection is based not only on the physical effectiveness of the device, but also on the cost to procure.

> Ideally, this lesson should be used after the concepts of supply and demand, as well as the determinants of each have been introduced to the students.

1. Begin by asking the class if they think the laws of supply and demand apply to the people that the United States were fighting against during the war in Iraq. Ask students the following:
   - Do the laws of supply and demand affect the insurgents in Iraq? (Answers may vary. Possible response: No, they will just take the materials they need.)
   - Why or why not? (Answers may vary. Possible response: No, other people that believe in their cause will give resources freely.)

> Both answers are likely true, but only for a relatively small amount of the material they need. For the rest, they will need to purchase. Since they have a limited supply of money, they face budget constraints, so as the price of a good increases, they can either purchase fewer units of that good or they can shift to a less expensive good (substitute). Terrorists are affected by the laws of supply and demand, otherwise they would likely only use EFPs since they are so much more effective.

2. Introduce the region to the class by showing them a map of Iraq (Visual 2.1). Start with a regional map so they will see the location of Iraq with reference to the surrounding countries.

3. Briefly introduce/review the story of the war in Iraq. (America invaded Iraq in 2003 in order to remove Saddam Hussein from power and seize the weapons of mass destruction (WMDs) that Saddam was building (none found). The Iraqi military was quickly defeated but an insurgency began and America was forced to fight against guerilla fighters, who we often refer to as terrorists or insurgents.

4. Show pictures of EFPs and the damage they cause (Visuals 2.2- 2.3) to the students and describe the weapon.

5. Describe the period of rapid growth from about 2001-2007 around the world. (Show World Output Graph, Visual 2.4) Point out the even though output in the developed countries is increasing, the output in the developing countries is growing extremely fast. This is important because the vast majority of the world's population is in developing countries.

6. Ask the students what effect the rapid growth would have on commodities like copper prices. Show the "Historical and Future Copper Prices" graph (Visual 2.5). Notice how the worldwide economic growth during the 2000s closely resembles the trajectory of the copper prices. If you are just introducing the conditions which shift supply and demand curves, you can show your students the graph of the shift in demand for copper (Visual 2.6) and describe why it increases the price. If this has already been introduced, have your students draw a graph depicting what is happening to the demand for copper and how it affects the price. Then, discuss how increased prices for copper would affect the market for EFPs (by increasing the price of inputs and therefore increasing the price of the EFPs – Visual 2.7).

7. Do the "Market for Copper" Activity (An adaptation from "A Market in Wheat" activity.)
The purpose of this activity is to show students how prices are established in a competitive market and to show how an increase in income will affect the demand for a good, which in this case is copper.

- Read aloud the "Market for Copper Directions"
- Clear a large area in the classroom and designate it as the marketplace.
- Have buy and sell cards ready; they should be kept in separate piles and shuffled between each round of play.

   Note: It is wise to appoint one or two students to handle the distribution and collection of the buy and sell cards during the game and another student to record each transaction on the Copper Sales Record, which is Visual 2.8 (It is better to record the transactions on the dry-erase/chalk board so the class can see when the game is over).

- Divide the class in half and have each group line up on opposite sides of the room. Tell the students that one group will be "buyers", and the other group will be "sellers".
- Distribute a score sheet to each student (Handout 2.1) and explain that they should use it to record every transaction they make. (If they need more space, tell them to use the back of the sheet or an additional piece of paper.) Review the details of the score sheet.
- Make sure all the students understand that they will determine the profit or loss for each transaction by calculating the difference between the dollar amount on their card and the dollar amount of the deal they made.
- Explain that you will conduct three rounds of trading, each lasting five minutes. After the first round, tell the students it was a practice round, but the next two rounds will count toward their final score for the day. As each round is conducted, announce how much time remains in one-minute intervals. Tell the students there will be a winner from each side: the buyer who makes the largest profit and the seller who makes the largest profit.

   (Optional) You may want to run only one or two rounds if time is limited and the students understand the concept.

- Give each student a "buy" or "sell" card. For the first round or two, the "buyers" should receive one of the smaller dollar amount cards (the set that runs from $1 to $10). For the final round or two, hand out the higher denomination cards (the set that runs from $6 to $20). This is to simulate an increase in income and should show up as in increased demand in the market for copper and therefore, increased prices.

Note: It is helpful to print the "buyer" and "seller" cards off in different colors. That way it is easier for sellers to identify buyers when the market is open.

Cards:

Sell Cards	Buys Cards (Low)	Buy Cards (High)
$2 (2)	$1 (4)	$6 (4)
$3 (2)	$2 (4)	$7 (4)
$4 (2)	$3 (4)	$8 (4)
$5 (3)	$4 (3)	$9 (3)
$6 (3)	$5 (3)	$10 (3)
$7 (4)	$6 (2)	$12 (2)
$8 (4)	$7 (2)	$14 (2)
$9 (4)	$8 (2)	$16 (2)
$10 (4)	$9 (2)	$18 (2)
	$10 (2)	$20 (2)

- Use the Copper Sales record to record transactions. Buyers should report transactions to the recorder before getting a new card. Make sure the overhead remains on as tallies are made.

- After the students have completed the activity, they can create a graph showing the supply and demand curves for copper using the card data from the table above.

Assessment

Ask the students the following:

- How does the supply and demand for goods affect the weapon selection of insurgent fighters in Iraq?

- Why did the increased price of copper affect the usage of EFPs in Iraq?

The students should create their own supply and demand graphs for both the copper and EFP markets using the data from the lesson, as well as create a supply and demand graph for the copper market using the card data. They should also be able to describe how the demand for copper affected their weapon selection.

Market For Copper

 Read the following instructions. Note that buyers remain buyers throughout the game. Sellers remain sellers throughout the game.

 1. Buyers will start the game with one buy-order card and one score sheet. The buy card will say, "You are authorized to BUY one pound of copper, paying as little as possible. If you spend more than _____, you will lose money." The exact price will be written on the buy card. Record the price of your buy order on your score sheet. When the round starts, try to buy at the lowest price you can. If you pay exactly the price written on your card, you will break even for that transaction. If you pay less than the price on your card, the difference is a profit. If you pay more than the price on your card, the difference is a loss. You may buy copper at whatever dollar price you are able to negotiate in the marketplace. As soon as you have bought copper, record the transaction on your score sheet. Then report the price you have negotiated to the recorder, who will keep a tally on the Copper Sales Record. Turn in your buy card, receive a new card and begin the negotiation process anew. If you do not buy copper during a round, you may return your buy card for a new card only after the round is finished.

 2. Sellers will start with one sell-order card and one score sheet. The sell card will say, "You are authorized to SELL one pound of copper for as much as possible. If you sell for less than _____, you will lose money." The exact price will be written on the card. Record the price of your sell order on your score sheet. When the round starts, try to sell at the highest price you can. If you get exactly the price written on your card, you will break even for that transaction. If you get more than the price on your card, the difference is a profit. If you get less, the difference is a loss. You may sell wheat at whatever dollar price you are able to negotiate in the marketplace. As soon as you have sold copper, record the transaction on your score sheet. Then turn in your sell card, receive a new card and begin the negotiation process anew. If you do not sell copper during a round, you may return your sell card for a new card only after the round is finished.

3. When the teacher says, "The market is open," buyers and sellers should meet in the designated area and try to agree on a price for a pound of copper. Make all transactions in even dollar amounts for one pound. Any buyer may talk with any seller.

4. The goal of buyers and sellers is to make as much money as they can. Buyers will do this by purchasing copper for a lower price than the price shown on their card. Sellers make money by selling for a higher price than the price shown on their card.

5. Every time a price is agreed on and a sale is made, the buyer must report the price to the recorder, who will enter it on the Copper Sales Record.

6. As soon as buyers and sellers receive new cards during a round, they should return to the marketplace and try to make another deal.

7. All students are free to make as many transactions in a round as time permits. Once the teacher says, "The market is closed," no further transactions will count.

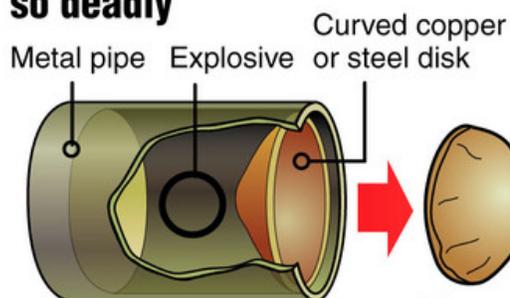VISUAL 2.1

Google Maps Image

Powerful roadside bomb

*The explosively formed penetrator (EFP),
designed to pierce armor at long
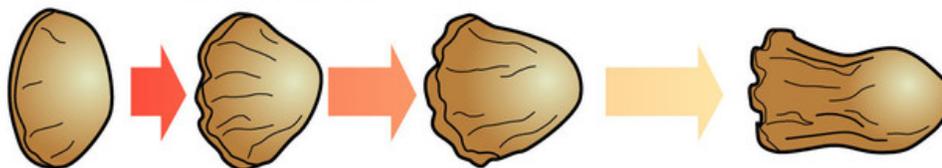distances, is being used
by Iraqi insurgents.*

1. Vehicle trips sensor, detonates EFP
2. Projectile hits at high speed, penetrates armor

Sensor

EFP

Why it's so deadly

Metal pipe   Explosive   Curved copper or steel disk
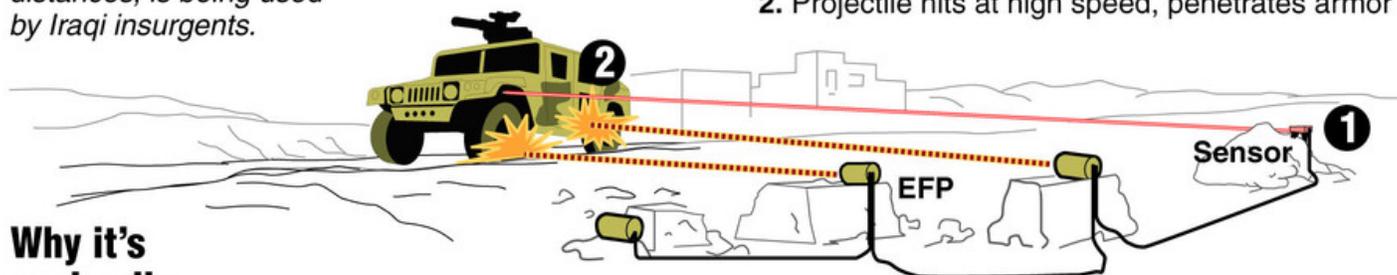
Heat, shock wave from detonation propel disk, soften it into rod

Example: 1 lb. (500 g) rod traveling about **1.2 mi. (2 km) per sec.**
can pierce more than **4 in. (10 cm)** of hardened steel armor

Source: Air Force Research
Laboratory, Global Security
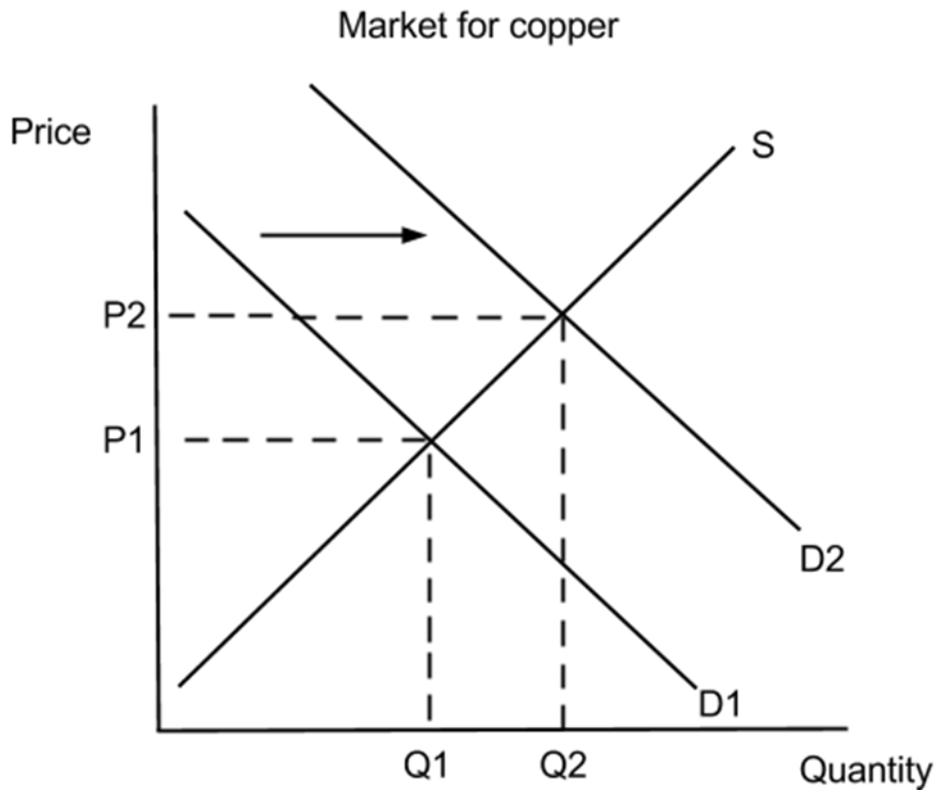Graphic: Lee Hulteng, Judy Treible
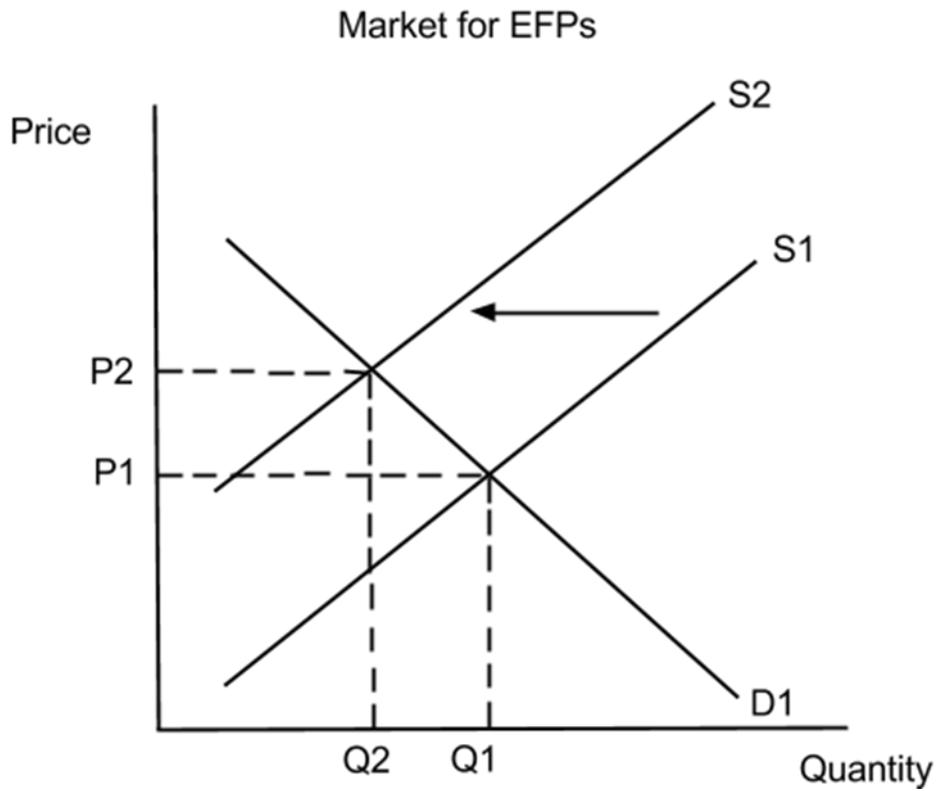
© 2007 MCT

VISUAL 2.4

Low and Middle Income Countries ●——● High Income Countries

VISUAL 2.5

Historical and Future Copper Prices ($/lb)

VISUAL 2.6

Market for copper

Price

P2

P1

S

D2

D1

Q1   Q2   Quantity

VISUAL 2.7

Market for EFPs

Price

S2

S1

P2

P1

D1

Q2 Q1

Quantity
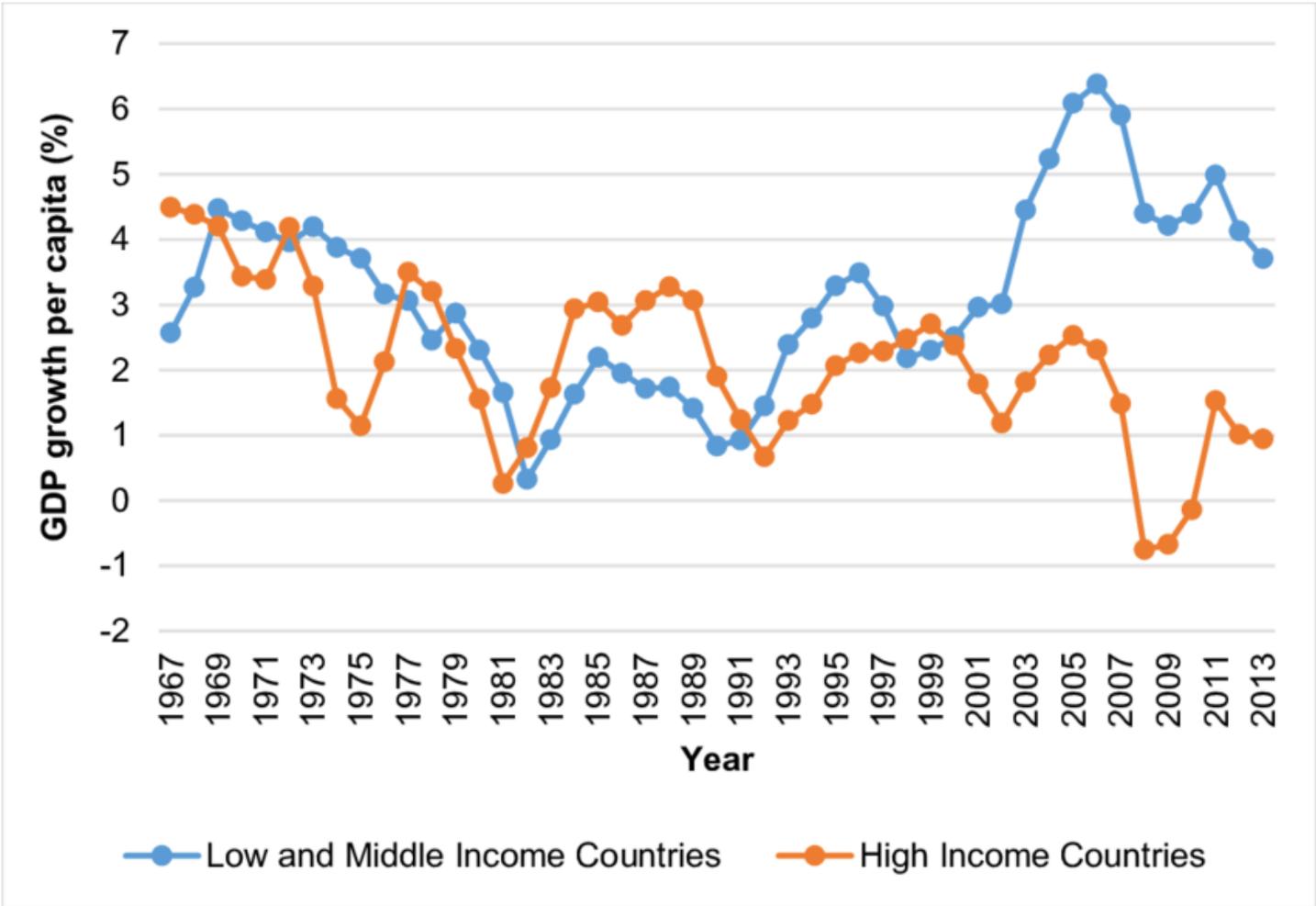
<u>Copper Sales Record</u>

	Round 1	Round 2	Round 3
$1			

$2			
$3			
$4			
$5			
$6			
$7			
$8			
$9			
$10			

$11			
$12			
$13			
$14			
$15			
$16			

$17			
$18			
$19			
$20			

<u>Copper Sales Ledger</u>

Circle one: I am a **Buyer**   I am a **Seller**

Transaction	Price per Pound		Profit	Loss
	On Card	**In Transaction**		
1				
2				
3				
4				
5				

6				

Total – Round 1:   -   =

	1				
	2				
	3				
	4				
	5				
	6				

Total – Round 2:   -   =

	1				
	2				
	3				
	4				
	5				
	6				

Total – Round 3:   -   =

Grand Total Profit (Loss)=

HANDOUT 2.1

You can **SELL** one pound of copper for as much as possible. If you sell for less than **$2.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$2.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$3.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$3.00** you will lose money.
You can **SELL** one pound of copper for as much as possible. If you sell for less than **$4.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$4.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$5.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$5.00** you will lose money.
You can **SELL** one pound of copper for as much as possible. If you sell for less than **$5.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$6.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$6.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$6.00** you will lose money.

You can **SELL** one pound of copper for as much as possible. If you sell for less than **$7.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$7.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$7.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$7.00** you will lose money.
You can **SELL** one pound of copper for as much as possible. If you sell for less than **$8.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$8.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$8.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$8.00** you will lose money.
You can **SELL** one pound of copper for as much as possible. If you sell for less than **$9.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$9.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$9.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$9.00** you will lose money.

You can **SELL** one pound of copper for as much as possible. If you sell for less than **$10.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$10.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$10.00** you will lose money.	You can **SELL** one pound of copper for as much as possible. If you sell for less than **$10.00** you will lose money.

You can **BUY** one pound of copper for as little as possible. If you spend more than **$1.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$1.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$1.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$1.00** you will lose money.
You can **BUY** one pound of copper for as little as possible. If you spend more than **$2.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$2.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$2.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$2.00** you will lose money.
You can **BUY** one pound of copper for as little as possible. If you spend more than **$3.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$3.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$3.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$3.00** you will lose money.

You can **BUY** one pound of copper for as little as possible. If you spend more than **$4.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$4.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$4.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$5.00** you will lose money.
You can **BUY** one pound of copper for as little as possible. If you spend more than **$5.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$5.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$6.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$6.00** you will lose money.
You can **BUY** one pound of copper for as little as possible. If you spend more than **$7.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$7.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$8.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$8.00** you will lose money.

You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$9.00</u>** you will lose money.	You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$9.00</u>** you will lose money.	You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$10.00</u>** you will lose money.	You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$10.00</u>** you will lose money.
You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$6.00</u>** you will lose money.	You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$6.00</u>** you will lose money.	You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$6.00</u>** you will lose money.	You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$6.00</u>** you will lose money.
You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$7.00</u>** you will lose money.	You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$7.00</u>** you will lose money.	You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$7.00</u>** you will lose money.	You can **<u>BUY</u>** one pound of copper for as little as possible. If you spend more than **<u>$7.00</u>** you will lose money.

You can **BUY** one pound of copper for as little as possible. If you spend more than **$8.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$8.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$8.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$8.00** you will lose money.
You can **BUY** one pound of copper for as little as possible. If you spend more than **$9.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$9.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$9.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$10.00** you will lose money.
You can **BUY** one pound of copper for as little as possible. If you spend more than **$10.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$10.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$12.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$12.00** you will lose money.

You can **BUY** one pound of copper for as little as possible. If you spend more than **$14.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$14.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$16.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$16.00** you will lose money.
You can **BUY** one pound of copper for as little as possible. If you spend more than **$18.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$18.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$20.00** you will lose money.	You can **BUY** one pound of copper for as little as possible. If you spend more than **$20.00** you will lose money.