Market Game in Oil

This lesson has been modified, for use in Foundation for Teaching Economics materials by Kathy Ratté and Kenneth Leonard, from The Big Apple published in *In The Marketplace*, 1978.

INTRODUCTION

Understanding how markets work and the role of prices within markets is an important key to being able to explain and predict economic behavior. In true markets, prices are determined by the interaction of buyers and sellers (unless government intervenes).

The market clearing or equilibrium price for a good or service is the one price at which quantity supplied equals quantity demanded.

Competition among sellers lowers costs and prices, and encourages producers to produce more of what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.

In this lesson students participate in a simulated commodities market. Students, acting as buyers and sellers of oil, will experience the competitive nature of markets. As a result, they will see how competition influences the price of goods and the decisions of buyers and sellers.

CONCEPTS

- Markets
- Supply
- Demand
- Competition
- Market-clearing price

LEARNING OBJECTIVES

Students will:

1. Understand how the interaction of buyers and sellers set the price in markets.
2. Realize that prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.
3. A shortage occurs when buyers want to purchase more than producers want to sell at the prevailing price. A surplus occurs when producers want to sell more than buyers want to purchase at the prevailing price.

MATERIALS

- Buyer and Seller limit cards (use 2 colours or use coloured arm bands for sellers if buyer and seller cards are the same colour)
- Student work sheet
- Overhead transparency of Student Worksheet
- Overhead transparency of Tally Sheet
- Two signs: “BUYERS (Maximum)” and “SELLERS (Minimum)”

Teacher note: This activity will work best with a class of 20-30 students, but up to fifty can participate. Before class make up 32 buyer and 32 seller cards (supplied) according to the following distribution.

BUYER’S CARDS **SELLER’S CARDS**

Buying price limit (maximum)	No.	Selling price limit (minimum)	No.
$26	2	$26	4
27	2	27	6
28	2	28	6
29	2	29	4
30	4	30	4
31	4	31	2
32	4	32	2
33	4	33	2
34	4	34	2
35	4		

PROCEDURE

1. Explain to students that they are going to take part in a market simulation.
2. Read the handout "How To Play the Market Game." Read aloud or have students read silently and then review the procedures and answer student questions.
   - You may want to designate one student to oversee the distribution of the buyer and seller cards during the activity and another to record each transaction on the tally sheet.
   - Buyer and Seller cards should be kept in separate piles, face down and each pile should be shuffled between rounds. Place the piles of buyer and seller cards at opposite ends of the desk or table to minimize the possibility of students taking cards from the wrong pile.

3. Clear the center of the room and designate it as the marketplace.

4. Divide the class into two equal groups. One group will be the **sellers**, the other the **buyers**. Explain that buyers will be buyers throughout the activity and that sellers will be sellers throughout the activity. (If you are using armbands, give these to the sellers.)

5. Hand out individual score sheets on which participants can record their transactions.
   - Review details of the score sheet if necessary.
   - Make sure students understand how to calculate "profit" on their score sheets.

6. Explain that you will conduct a number of rounds of trading sessions of five minutes each. (You may want to do one practice round.) Announce to students when one minute remains in each round.

7. Encourage students to make as many deals as they can in the time permitted. Explain that it is permissible to take a loss in order to get a new transaction card. In order to encourage participation explain to students that if they make no transactions in a round they must count the amount on their card as a loss at the end of the round.

8. After each trading round, allow students time to figure their net losses and gains — their "profit."

9. During non-trading time between rounds, direct students' attention to the market record on the tally sheet. Tell them that it may contain useful information for them. Do not elaborate.

10. After the final round have students calculate their total profit or loss for all rounds.

11. Give candy as award to the buyer and the seller with the highest profit.

DEBFIEF

1. Ask for a show of hands from those who made money, from those who lost money. Ask who made the most money. Ask how many buyers and how many sellers made money.
2. Call on a couple of the money-makers and ask why they think they were successful.
3. Call on a couple of the students who lost money and ask why they think they were unsuccessful.
4. Ask students what conditions made the market work well. (Equal number of buyers and sellers, like products for sale, equal or full knowledge about the products, clear rules concerning what you could and couldn't do in the market)
5. Direct students' attention to the class tally sheet and ask if they can make any statements about price in the various rounds.

   - What was the most frequent transaction price in each round?

   - In which round was there the greatest spread in transaction prices? Why?

- Why did the transaction prices become more clustered in the final rounds? (Competition is the most important cause for the clustering of prices. This phenomenon represents the tendency of a competitive market to move toward an equilibrium or market-clearing price. Many factors help to account for this: better information, more astute buyers and sellers, better identification of particular buyers and sellers etc.)

6. Who determined the "market price" for oil - buyers or sellers? (Both. It is the interaction of buyers and sellers that determine the market clearing price)
7. Ask both the buyers and sellers where they would have set the price if they'd had the power to do so. (Buyers would set a lower price and sellers would set a higher price.)
8. Ask students if they would describe this as a competitive market. Ask who was in competition with whom? (It is important to note that buyers compete with buyers to bid prices up and sellers compete with sellers to bid prices down.)
9. Draw the axis for a supply and demand curve on the board. The vertical Y-axis should be measurements of **price (P)** [$26 - $35] and the horizontal X-axis measurements of quantity (Q). Ask your BUYERS, when the price was high (e.g. $35 dollars) were you willing and able to buy large or small quantities of oil? Mark this point on your graph. Now ask your BUYERS, when the price of oil was low (e.g. $26 dollars) were you willing and able to buy large or small quantities of oil? Mark this point on your graph. When you connect the two points, this down-ward- sloping curve is the demand for oil (or **Demand Curve**). This represents what buyers would do in a market under certain assumptions. The quantity demanded tends to increase as price goes down.

   Now ask your SELLERS, when the price you were receiving for your oil was high (e.g. $35 dollars) were you willing and able to sell large or small quantities of oil? Mark this point on your graph. Now ask your SELLERS, when the price of oil was low (e.g. $26 dollars) were you willing and able to sell large or small quantities of oil? Mark this point on your graph. You can ask your talley recorder for summary data collected from the SELLERS if you want to plot exact data. When you connect the points, this line or up-ward-sloping curve is the supply for oil (or **Supply Curve**). This represents what sellers would do in a market under certain assumptions. The quantity offered tends to increase as price goes up.

   The price that will be established in a market (market-clearing price) is the point of intersection of the supply and demand schedules. In this simulation the supply equals demand at a price of approximately $30.

Optional Extension:

You can conduct additional rounds of the activity to explore with the students what effect changes in market structure will have on market price and on buyer and seller behaviour.

1. Tell students that you feel badly that not enough buyers made money because the price of oil was too high. Consequently, you are going to play another round, but as the teacher you are setting the maximum price at $27 a barrel (As you run the round you will find that sellers choose not to participate. The eventual result is far fewer transactions in the marketplace and fewer barrels of oil offered for sale.)

2. Tell students that the oil industry is so important that you want to make sure that sellers make enough money to stay in business so you are going to set a minimum price of $34 for the next round. (This time buyers will choose not to participate, so sellers will not be able to sell their high priced oil.)
3. To see how important the numbers of buyers and sellers are to successful markets you can conduct a round in which you designate just two students as sellers and everyone else as buyers. Put the sellers in opposite corners of the room and give them each half of the seller cards.

   Explain that sellers must still draw a new card from the face down stack for each transaction they choose to make. (You will find that the market works surprisingly well with this mix of buyers and sellers. There will be fewer transactions and the price will rise some, but not in the dramatic fashion that students might predict). Discuss whether or not the sellers were still in competition with each other and how much that influenced the market price. (Markets can be quite competitive with unequal numbers of buyers and sellers.)

CONCLUSION

Markets exist when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services. High prices for a good or service provide incentives for buyers to purchase less of that good or service and for producers to make or sell more of it. Lower prices for a good or service provide incentives for buyers to purchase more of that good or service and for producers to make or sell less of it.

Government-enforced price ceilings set below the market-clearing price and government-enforced price floors set above the market clearing price distort price signals and incentives to producers and consumers. The price ceilings cause persistent shortages, while the price floors cause persistent surpluses.

Competition takes place when there are many buyers and sellers of similar products. Competition among sellers results in lower costs and prices, higher product quality, and better customer service. Competition among buyers of a product results in higher product prices. The level of competition in a market is influenced by the number of buyers and sellers.

Source: The Fraser Institute, www.fraserinstitute.ca

BUYER CARDS (MAXIMUM LIMITS) (Page 1, side 1 – print double-sided)

$26	$29	$31
$26	$30	$31
$27	$30	$32
$27	$30	$32
$28	$30	$32
$28	$31	$32
$29	$31	$33

Teacher' Note: For best results copy on different coloured card stock than Seller cards

Source: The Fraser Institute, www.fraserinstitute.ca

BUYER CARDS (MAXIMUM LIMITS) (Page 1, side 2 – print double-sided)

BUYER	BUYER	BUYER
BUYER	BUYER	BUYER
BUYER	BUYER	BUYER
BUYER	BUYER	BUYER
BUYER	BUYER	BUYER
BUYER	BUYER	BUYER
BUYER	BUYER	BUYER

Source: The Fraser Institute, www.fraserinstitute.ca

BUYER CARDS (MAXIMUM LIMITS) (Page 2, side 1 – print double-sided)

$33	$34	$34
$33	$34	$35
$33	$34	$35
	$35	$35

BUYER CARDS (MAXIMUM LIMITS) (Page 2, side 2 – print double-sided)

BUYER	BUYER	BUYER
BUYER	BUYER	BUYER
BUYER	BUYER	BUYER
BUYER	BUYER	BUYER

SELLER CARDS (MINIMUM LIMITS) (Page 1, side 1 – print double-sided)

$26	$27	$28
$26	$27	$28
$26	$27	$29
$26	$28	$29
$27	$28	$29
$27	$28	$29
$27	$28	$30

Teacher' Note: For best results copy on different coloured card stock than Buyer cards

Source: The Fraser Institute, www.fraserinstitute.ca

SELLER CARDS (MINIMUM LIMITS) (Page 1, side 2 – print double-sided)

SELLER	SELLER	SELLER
SELLER	SELLER	SELLER
SELLER	SELLER	SELLER
SELLER	SELLER	SELLER
SELLER	SELLER	SELLER
SELLER	SELLER	SELLER
SELLER	SELLER	SELLER

Source: The Fraser Institute, www.fraserinstitute.ca

SELLER CARDS (MINIMUM LIMITS) (Page 2, side 1 – print double-sided)

$30	$31	$32
$30	$31	$32
$30	$33	$33
$34	$34	

SELLER CARDS (MINIMUM LIMITS) (Page 2, side 2 – print double-sided)

SELLER	SELLER	SELLER
SELLER	SELLER	SELLER
SELLER	SELLER	SELLER
SELLER	SELLER	SELLER

Source: The Fraser Institute, www.fraserinstitute.ca

Student Handout

HOW TO PLAY THE MARKET GAME

The goal for both buyers and sellers in this activity is to make a **profit**.

Buyers

- **Your goal** is to pay as little for the oil as possible. The highest price you can pay in order **not to lose money** is printed on the **Buyers' Maximum Cards**. Each buyer will have only one limit card at a time. Pick one up from the table that says BUYERS (Maximum) before each transaction!
- If you pay a higher price than is printed on the limit card you lose money. DO NOT REVEAL YOUR LIMIT PRICE, ONLY RECORD IT ON YOUR SCORE SHEET.
- When the round starts, try to buy at the lowest price you can. However, you may buy at a price higher than that on your buyer card in order to obtain oil (with a loss). If a seller accepts your buying price bid simply record the price agreed by both of you on your score sheet. For example:

On card (maximum limit price)	**In transaction** (actual price of oil bought)	**Profit/(Loss)**
$34	$32	$2
$30	$31	($1)

- After making and recording a transaction, turn in the buyer card you have and get another buyer card from the buyer pile. If you have bought no oil during a whole round, get a different buyer card from the buyer card pile before the start of the next round.

Sellers

- **Your goal** is to sell oil for as high a price as possible. The lowest price you can sell in order **not to lose money** is printed on the **Sellers' Minimum Cards**. Each buyer will have only one limit card at a time. Pick one up from the table that says SELLERS (Minimum) before each transaction!
- If you sell oil for a lower price than is printed on the limit card you lose money. DO NOT REVEAL YOUR LIMIT PRICE, ONLY RECORD IT ON YOUR SCORE SHEET.
- When the round starts, try to sell at the highest price you can. However, you may sell at a lower price than that on your lower card (with a loss). If a buyer accepts your selling price bid simply record the price agreed by both of you on your score sheet. For example: (see next page)

On card (minimum limit price)	**In transaction** (actual price of oil sold)	**Profit/(Loss)**
$27	$30	$3
$32	$31	($1)

- After making and recording a transaction, turn in the seller card you have and get another seller card from the seller pile. If you have sold no oil during a whole round, get a different seller card from the seller card pile before the start of the next round.

Buyers and Sellers

1. When the teacher says "Start," sellers and buyers are free to move around the room and to make transactions with one another. Any seller may talk with any buyer.

2. Both buyers and sellers are free to make as many transactions as they want in a round. Remember to put your card back into the pile after each transaction.

3. You must make a transaction before you can take a new card. You are allowed to take a loss in order to complete a transaction.

4. Following each transaction, sellers must report their selling price to the talley recorder who will mark off their selling price on the class talley sheet.

5. During the game, keep track of your progress on the student score sheet. Compute your gains and losses by taking the difference between the price on your buyer or seller card and the price of the transaction.

6. If you are a buyer, you will make a "profit" if you buy at a price lower than the price shown on your card. If you buy at a higher price, you suffer a loss.

7. If you are a seller, you will make a "profit" if you sell at a price higher than the price shown on your card. If you sell at a lower price, you suffer a loss.

STUDENT SCORE SHEET

Name:

Circle One: BUYER SELLER

Price On card (limit price)	**Price In transaction**	**Profit/(Loss)**

Source: The Fraser Institute, www.fraserinstitute.ca

CLASS TALLY SHEET

Price per Barrel	Round 1	Round 2	Round 3	Round 4	Round 5	Total of Rounds 2-5
$26						
$27						
$28						
$29						
$30						
$31						
$32						
$33						
$34						
$35						

Source: The Fraser Institute, www.fraserinstitute.ca