



Activity – In the Chips – A Market in Computer Chips

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.

Concepts:

Supply
Demand
Equilibrium Price (or Market Clearing Price)
Competition

National Content Standards Addressed:

Standard 7: Markets

Markets exist when buyers and sellers interact. This interaction determines market price and thereby allocates scarce goods and services.

- A market exists whenever buyers and sellers exchange goods and services.
- Market prices are determined through the buying and selling decisions made by buyers and sellers.
- The market clearing or equilibrium price for a good or service is the one price at which quantity supplied equals quantity demanded.

Standard 8: The Price System

Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.

- 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

Standard 9: The Role of Competition

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.

- 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.

Lesson Description:

This lesson simulates a market for computer chips. Students, acting as buyers and sellers, 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.

Time Required: 1-2 class periods

Materials:

- Student buyer and seller cards (use 2 colors or use colored arm bands for sellers if buyer and seller cards are the same color)
- Student transaction sheet – 1 per student
- Overhead transparency of Student Worksheet
- Overhead transparency or handout of “How to Play *In the Chips*”
- Overhead transparency of Tally Sheet

Preparation:

Make 32 buyer and 32 seller cards according to the following distribution.

Buyer Cards		Seller Cards	
Buy Price	No.	Sell Price	No.
\$3.50	2	\$3.50	4
3.70	2	3.70	6
3.90	2	3.90	6
4.10	2	4.10	4
4.30	4	4.30	4
4.50	4	4.50	2
4.70	6	4.70	2
4.90	6	4.90	2
5.10	4	5.10	2

Procedure:

1. Explain to students that they are going to take part in a market simulation. Read the handout, “How To Play *In The Chips*.” Read aloud or have students read silently and then review the procedures and answer student questions.
2. Designate one student (or a classroom aide) 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 and each pile should be shuffled between rounds. While the buyer and seller cards are different colors, placing the piles at opposite ends of the desk or table further minimizes 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.
5. Hand out individual score sheets on which participants can record their transactions. Review details of the score sheet if necessary. Make sure both buyers and sellers understand how to calculate “profit” on their score sheets. Emphasize that the **sellers** are responsible for reporting the selling price for each transaction.
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.*) For tallying purposes ask students to make all transactions in ten cent increments.
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. Remind them that one of the functions of markets is to convey information and indicate that the game tally may reveal things they would be interested in knowing – as buyers or sellers. out, for example, deals that were made at high prices and deals that were made at low prices, and the numbers of transactions made at various prices.
10. After the final round have students calculate their total profit or loss for all rounds.

Debriefing Questions:

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 could not 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. Follow-up question: What was the most frequent transaction price in each round?
6. In which round was there the greatest spread in transaction prices? Why?
7. 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.)
8. Who determined the "market price" for computer chips - buyers or sellers? *(Both. It is the interaction of buyers and sellers that determine the market clearing price)*

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.)*

9. 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.)
10. How does opportunity cost explain a high price on a seller card? A low price on a buyer card? *(Students will quickly associate a high seller price with high production costs, but help them to see that it may also reflect the seller's opportunity cost – that he could be producing something else and will only produce computer chips if he can sell them at the higher price. Students also quickly assume that the low buyer price indicates that the buyer is poor. Point out the possibility that the buyer is rich, but places little value on the box of computer chips – perhaps because she already has a storehouse full of them!)*

Optional Extension:

Once students have played *In the Chips*, it is easy to go back at a later time and play additional rounds to illustrate different market phenomena. It is best to play additional rounds at another time rather than trying to show all the possibilities in one activity. As students' understanding of markets develops, and as the semester of study progresses, returning to the game to play an additional round can be very effective. For example:

- Price ceiling: Tell students that you feel badly that not enough buyers made money because the price of computer chips was "too high." Consequently, you are going to play another round, but as the teacher you are setting the maximum price at \$3.75.

(The sellers will quickly choose not to participate. The eventual result is far fewer transactions in the marketplace and fewer computer chips offered for sale.)

- Price floor: Tell students that the computer chip 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 \$4.90 for the next round. *(This time buyers will choose not to participate, so sellers will not be able to sell their high priced chips.)*
- Limited competition: Conduct a round with only 2 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. Discuss whether or not the sellers were still in competition with each other and how much that influenced the market price. *(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. Markets can be quite competitive with unequal numbers of buyers and sellers.)*

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How to Play *In The Chips*

1. Players' goal in the activity is to make as much **profit** as they can over the course of the game.
2. **Buyers:** Each buyer will have only one buyer card at a time. It will say, "*You are authorized to buy a box of computer chips. Pay as little as possible. If you pay more than _____ per box, you lose money.*" To make a "profit," buy at a price lower than the price shown on your card. If you buy at a higher price, you suffer a loss.

DO NOT REVEAL THE PRICE.

Record the buyer card price on your student score sheet.

When the round starts, try to buy below your buyer-card price – *the lower, the better*. (You *may* buy at a price higher than that on your buyer card in order to obtain chips, but note that this will reduce your "profit" for the round.) When you make a purchase, record the **transaction price** on your score sheet. Then, turn in the buyer card and get another buyer card from the buyer pile.

3. **Sellers:** Each seller will have only one seller card at a time. It will say, "*You are authorized to sell one box of computer chips for as much as possible. If you accept less than _____ per box you lose money.*" To make profit, sell at a price higher than the price shown on your card. If you sell at a lower price, you suffer a loss.

DO NOT REVEAL THE PRICE.

Record the seller card price on your student score sheet.

When the round starts, try to sell above your seller-card price – *the higher, the better*. (You *may* sell at a price lower than that on your seller card to get rid of your chips, but note that this will reduce your profit for the round.) When you make a sale, you must: **1) report the transaction price to the person keeping the Market Tally Sheet in the front of the room; 2) record** the transaction price on your score sheet, and then **3) turn in** your seller card you have and **get another** from the seller pile.

Remember – the seller is responsible for reporting the transaction price.

4. 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.
5. Both buyers and sellers are free to make as many transactions as they want in a round. For tallying purposes, please make all transactions in ten cent increments. Remember to trade in your card after each transaction.
6. 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.

STUDENT SCORE SHEET

“In the Chips”

Name: _____

BUYER SELLER *(Circle One)*

Transaction	Price on Card	Transaction Price	Gain	Loss	Profit
1					
2					
3					
4					
5 Total For Round 1					
1					
2					
3					
4					
5 Total For Round 2					
1					
2					
3					
4					
5 Total For Round 3					
1					
2					
3					
4					
5					
Total For Round 4					
Grand Total					

You may make as many transactions as you wish in each round. If there are not enough lines on the chart, continue to record transactions on the lines for the next round and then continue onto the back, if necessary.

MARKET TALLY: *In the Chips*

Transaction Price	Round 1	Round 2	Round 3	Round 4
5.40				
5.30				
5.20				
5.10				
5.00				
4.90				
4.80				
4.70				
4.60				
4.50				
4.40				
4.30				
4.20				
4.10				
4.00				
3.90				
3.80				
3.70				
3.60				
3.50				
3.40				
3.30				

SELLER CARDS – *In the Chips*

SELLER You are authorized to sell one box of computer chips for as much as possible. If you accept less than _____ per box, you lose money. DO NOT REVEAL THE PRICE. Record the price on this seller card and on your student score sheet.	SELLER You are authorized to sell one box of computer chips for as much as possible. If you accept less than _____ per box, you lose money. DO NOT REVEAL THE PRICE. Record the price on this seller card and on your student score sheet.
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BUYER CARDS – *In the Chips*

BUYER You are authorized to buy one box of computer chips. Pay as little as possible. If you pay more than _____ per box, you lose money. DO NOT REVEAL THE PRICE. Record the price on this buyer card and on your student score sheet.	BUYER You are authorized to buy one box of computer chips. Pay as little as possible. If you pay more than _____ per box, you lose money. DO NOT REVEAL THE PRICE. Record the price on this buyer card and on your student score sheet.
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