

Bringing It All Together – Supply and Demand Game

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SUBJECT(S): Economics

GRADE LEVEL(S): 9, 10, 11, 12

≡ OVERVIEW:

In this lesson, students will reason about complex supply and demand relationships by playing an economics game. This game combines previous lessons on the laws of supply and demand, shifts in supply and demand, equilibrium prices and elasticity. Students will take on one of many supply-chain roles (e.g. factory, wholesale, distributor, retailer), and make concrete choices about inventory and sales. The lesson provides students with personal experience from which to compare formal economic theory.

≡ NBEA STANDARD(S):

- Economics, I. Allocation of Resources
- Economics, IV. Markets and Prices

≡ RELATED ARTICLES:

- [“Wharton Insights on the Impact and Implications of Coronavirus”](#)
- [“The Supply Chain: Who Knew that Every Oreo Makes a Journey?”](#)
- [“The Mask Challenge: Lessons from the Pandemic’s PPE Shortage”](#)
- [“The Business of Bling: News from the Diamond Trade”](#)
- [“Insights from the Fall of Aleppo”](#)
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- “GDP: The Rock Star of Economic Indicators”
- “Exploring the Economics of Everyday Life”
- “Educator Toolkit: Energy Economics”
- “A Student Draws Inspiration from the Dabbawalas of Mumbai”
- “A Look at Amazon, Walmart and How Your Shopping Experience Is Changing”
- “A ‘Sneakerhead’ Shares His Simple Strategy: Buy Low and Sell High”
- “5 Things You Should Know About a British Exit from the European Union”

Common Core Standard(s):

- Mathematics (N-Q), “Reason quantitatively and use units to solve problems”

Objectives/Purposes: The purpose of this lesson is to give students first-hand experience reacting to supply and demand.

- Students will be able to think about supply and demand from a firm’s perspective.
- Students will be able to compare their own experience to formal *laws of supply and demand*.

Other Resources/Materials:

For Teachers:

- Printer/Copier
- Access to Chalkboard/Whiteboard
- 48 coins (or other uniform markers)
- [Score Sheet](#)

For Students:

- Paper
- Pen

Activity:

1. Explaining the Game to Students

In this game, we are going to look at supply and demand for a common product (for example, orange juice). How does a carton of orange juice end up at your local supermarket? Often, the journey is more complicated than you might imagine.

For this game, you will be split into four teams. Each team represents a different step from the farm to the kitchen table. Team 1 will be the **factory**. The factory takes oranges from local farms and makes its own brand of orange juice. Team 2 will be the **wholesaler** who buys orange juice directly from the factory, then sells it to companies across the country. Team 3 will be the **distributor**. Local distributors buy orange juice from the wholesaler, and ship it to local supermarkets. Team 4 is the supermarket, or **retailer**. The supermarket supplies orange juice to fulfill demand from the customers.

How demand works:

Customers → Retailer → Distributor → Wholesaler → Factory

How supply works:

Factory → Wholesaler → Distributor → Retailer → Customer

During this game, each group will start out with a certain amount of orange juice in inventory. Each case of orange juice will be represented by 1 coin (or other token). All teams start with 12 coins.

During each turn of the game, each team makes a single choice: “How many cases of orange juice do I want from my supplier?” In other words, the **retail** team will decide how many cases to order from the distributor. The **distributor** team will decide how many cases to order from the wholesaler. The **wholesaler** team will decide how many cases to order from the factory. And the **factory** team will decide how many cases to order from the farm (for this game, the teacher will take on the role of the farm, always giving the factory team exactly what they order).

Each turn, the teams will also have to fulfill demand. Each team must supply exactly what is requested of them. For example, if the **wholesale** team orders 4 cases of orange juice, then the **factory** team must give up four cases from inventory. If the **retail** team orders 10 cases of orange juice, then the **distributor** team must give them 10 cases of orange juice.

The **retail** team is in a unique position. Orders for the retail team come from supermarket customers. How many cartons of orange juice are customers buying from the store this week? These orders will be written down on a deck of cards. Each turn, the **retail** team will take one card from the deck, in order to see demand for that turn.

This is the general pattern of the game. When a turn begins, **retailers** pick up a new card from the deck. They cannot share this information with any other group. Based on this card, **retailers** can place an order for more orange juice and give it to the **distributors**. *HOWEVER*, this order cannot be opened until the next turn.

Next, the **distributors** will look at orders from the retailers. Since orders cannot be opened until the next turn, **distributors** will always open the retail orders from the previous turn. For example, during turn 2, the distributors will open the order given to them by the retailer in turn 1. The **distributor** must always fulfill this order. However, orders cannot be fulfilled until the next turn.

So, to give a working example: during turn 1, the retail team gives an order to the distributor team. During turn 2, the distributor team opens that order. Based on this information, the distributor team makes its own order from the wholesaler. Finally, during turn 3, the distributor fulfills the order from the retail team by giving them the appropriate number of tokens.

This same pattern applies to every team. During turn 1, each team receives an order. During turn 2, each team opens this order, and each team places an order of their own. During turn 3, each team fulfills the order given to them in turn 1.

For Teachers: Before starting the game, create a deck of cards representing customer demand at the supermarket. The number on each card represents the number of cases demanded by consumers. (For example, a card with number “4” on it, represents 4 cases being purchased at the supermarket). Make a deck with 30 or so cards. Five of these cards should have the number “4” on them. All other cards should have the number “8” on them. In other words, demand stays constant at 4 cases per week for several weeks. Then demand shifts to 8 cases per week, and stays at 8 cases per week for the rest of the game.

Walk students through the first few turns. Make sure each team understands the game, and the delays associated with ordering and fulfilling orders. Finally, explain to students that the goal is to always have *exactly the right amount of inventory*. Too little inventory, and you risk running out of orange juice (and losing customers). Too much inventory, and you have to pay to store it. Each turn, keep track of the inventory and backlog for each group using the score sheet provided. For example, if one group ends a turn with 5 coins, put a 5 under “inventory” for that group on that turn. If another group only has four coins, but must fulfill an order for six coins, then the group will

have a backlog of 2 coins. Mark 2 under “backlog” for that group. Groups must always fulfill backlogs *before* fulfilling new orders.

The team that wins is the team with lowest *cost*, (i.e. the lowest combined total inventory and total backlog throughout the entire game.)

2. Closing

After students play through the game, bring the discussion back to *supply* and *demand* from previous lessons in the unit. Let students in on customer demand (4 cases per week, then 8 cases per week). Remind them of *shifts in demand*. What should happen when demand shifts outward? Did you find this equilibrium in the game? Why or why not?

What Worked and What I Would Do Differently:

This lesson was by far my students’ favorite. The game requires a decent amount of prep work by the teacher. Moreover, students like to rush through each turn. In order to prevent confusion, teachers must be very deliberate. Do not let students make any moves (i.e. picking up orders, making orders, etc.) *until you say so*. Moreover, make sure every team makes their moves *at exactly the same time*.

Also, you don’t have to wait until the end of the game to start reflecting. Encourage students to think about the game midway through, as they are playing.

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