



POWELL CENTER FOR  
ECONOMIC LITERACY

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Published in Spring 1998 *ECON-EXCHANGE*

Last Modified: September 10, 2009

## Apples Juice Up Economics

### Time Required

3 – 4 class periods

### Grade Level and Subject

Middle School; Social Studies

### Keystone Economic Principles

Principle #2 – There ain't no such thing as a free lunch

Principle #9 – Prices are determined by the market forces of supply and demand, and are constantly changing...

### Voluntary National Content Standards in Economics

Standard #7 – [Markets: Price and Quantity Determination](#)

Standard #8 – [Role of Price in Market System](#)

### Economic Concepts

**Demand** – *The amount of a good or service buyers are willing and able to purchase at various prices at a given time.*

**Opportunity Cost** - *The opportunity given up when choosing between two alternatives, with the decision in favor of one opportunity being at the cost of the other. The opportunity lost or given up.*

**Price** – *Amount a buyer pays and a seller receives for a good or service in the*

marketplace.

**Shortage** - The situation that results when the quantity demanded for a product exceeds the quantity supplied. Generally happens because the price of the product is below the market equilibrium price.

**Supply** – The quantities that producers are willing and able to sell at all possible prices in a given period of time.

**Surplus** - The situation that results when the quantity supplied of a product exceeds the quantity demanded. Generally happens because the price of the product is above the market equilibrium price.

## Overview

Make economic concepts come to life! What better way to teach about the economic concepts of supply and demand than by using real-life situations that give a human touch to learning? This lesson focuses on supply and demand for a new variety of apple, the Ginger Gold.

Throughout the lesson students are actively involved in their learning as they plot graphs, create logos, and develop marketing plans to increase demand for this new variety of apple.

Understanding supply and demand will enable students to be more aware of the various factors that affect prices in the marketplace. This knowledge will prepare students to be better-informed consumers and producers in a market economy.

## Objectives

- Students define supply, demand, and equilibrium price.
- Students explain and use the laws of supply and demand.
- Students construct and read demand, supply, and market equilibrium graphs.
- Students discuss and develop a plan to create demand for a new product being introduced on the market.
- Students discuss and give examples of factors that affect supply, demand, and price in a market economy.

## Materials and Handouts

- 8.5 x 11" paper, colored pencils, crayons, Ginger Gold or Golden Delicious Apples
- Teacher guides for Handouts #3, #4, and #5
- Handout #1 *Hurricane Camille Leaves a New Apple in Nelson County*
- Handout #2 *Supply and Demand Schedules*
- Handout #3 *Supply and Demand Graphs*
- Handout #4 *Equilibrium Price Graph*
- Handout #5 *Shift in the Supply Curve*
- Handout #6 *Predicting Changes in Supply, Demand, and Price for Ginger Golds*

## Teaching Activity

### The story of Ginger Golds

Introduce the lesson by holding up a Ginger Gold apple (which looks similar to the Golden Delicious) and explaining to the students that the apple will be used to teach the economic concepts of supply and demand. If you are not able to obtain a Ginger Gold apple, you can download a picture at

<http://www.virginiaapples.org/varieties/gingergold.html>

Pass out **Handout #1** and read this with the students to give them the background on the apple. Discuss with the students the considerations a producer faces in determining supply. Emphasize the two requirements, *willing* and *able*, and how they are different from each other. Explain that producers must calculate expenses such as the raw land on which the apples are grown, improvements to the land, the labor and equipment necessary to harvest the apples, transportation costs, rates of spoilage in bringing the apples to market, and determine the profit necessary to make all this worthwhile to the farmer. Explain to the students that the law of supply states that producers will supply more products when they can sell them at higher prices. This occurs because a higher price provides additional profit to the producer, which is the incentive to produce and sell a greater quantity.

Demand (the *willingness and ability* to buy a product at a particular price) has the opposite relationship to price. Consumers will buy more of a product at a low price than a high price. This is because at a lower price, the consumer faces lower opportunity costs. There are fewer things that must be given up in order to purchase the particularly product.

### Creating the supply and demand curves

Once students have an understanding of the concepts, pass out **Handout #2**, the supply and demand schedules and **Handout #3**, the graph which will be used to create the supply and demand curves. The supply and demand schedules contain information about the number of Ginger Golds supplied and demanded at various price points. Ask students to use that information to construct a separate graph from each schedule, using handout #3. Explain that the price is shown along the vertical axis and quantity supplied or demanded along the horizontal axis. Have them place a dot on the supply graph for the number of bushels of apples the producers are willing to supply at each price. When the dots are connected, they form the *Supply Curve*.

Follow the same procedure to graph the *Demand Curve*, placing a dot on the demand graph for the number of bushels of apples consumers demand at each price. Review the graphs with the students, explaining how they illustrate the law of supply and the law of demand.

### Finding the equilibrium point

Discuss with your students the fact that price is determined by the intersection of the

supply and demand curves. The intersection is the market equilibrium price, wherein demand for a good is equal to the supply of the good. At any other price point, either demand is greater than the supply (creating a shortage), or the supply is greater than the demand (creating a surplus). Have your students complete **Handout #4**, which will demonstrate the actual price that Ginger Golds sold for when they first went on the market in the late 1980s. As can happen with new products on the market, the supply of apples increased as more orchards grew the apple in response to the relatively high price consumers were willing to spend for Ginger Golds.

The resulting rightward shift in the supply curve occurred because the additional producers competed with each other for customers by lowering their prices. Thus, a new equilibrium point was established and the price dropped. By spring of 1997, the Ginger Gold was selling for \$35 a bushel.

The next activity is one the students really enjoy. Divide the class into groups of three students. Explain to them that no matter how exceptional an apple the Ginger Gold may be, no one will benefit unless people learn of its existence, find out where it may be purchased, and become acquainted with its quality and price. If Ginger Golds are available, give one to each student to see and taste. This allows the students to become familiar with the product. Then tell the students they must develop a marketing plan to increase demand for the Ginger Gold. This includes having each group member design a logo and slogan for the apple; then the group will brainstorm ways to promote the Ginger Gold.

Have each group present their marketing ideas and logos to the class. Students ideas might include:

- advertising in apple/trade magazines;
- contacting nurseries that grow apple trees commercially;
- sending free samples to grocery store produce buyers;
- inviting major apple growers from throughout the nation to visit the orchard and giving them gift boxes of the apple; and
- contacting newspapers and magazines about doing a feature story on the Ginger Gold.

## Handout #1

### Hurricane Camille leaves a new apple in Nelson County

Usually hurricanes and floods leave only destruction behind. But Mother Nature loves to battle. So in the aftermath of the devastating Hurricane Camille in 1969, Clyde and Ginger Harvey were puzzled by a seedling they saw in what was left of one of their apple orchards at Mountain Cove Apples in Virginia's Blue Ridge Mountains. It wasn't like any of their other apple trees. They watched and waited as this chance seedling produced what has become one of Virginia's most tasty apples, the Ginger Gold.

Looking back on that August night Hurricane Camille hit Nelson County and other areas of Virginia, Ginger Harvey recalled what it was like to lose everything. "We knew it was bad because in the middle of the night, the rain sounded like jet planes going over. In the morning, we just had to look out of the window to know we had lost everything," said Harvey. "The side of the mountain that our house faced was completely washed away. We lost three entire orchards as a result of the flood, lots of equipment, a migrant labor camp and three dwellings. But this wasn't even on our minds at first after the hurricane. What we were concerned about was the loss of friends and neighbors.

About 70 people died in that hurricane," explained Harvey. "As time went on, we turned our thoughts to putting our lives back together. This meant getting a roadway in, getting in a generator, bringing in top soil, replanting some of the few trees that survived around the edges of our orchards. In doing so, we dug up one tree that did not look like a winesap, which is what we thought we were digging up. My husband knew this tree was different, and he gets all the credit for recognizing this tree as a new variety and continuing to believe in it."

This tree was later identified by a state horticulturist as being a cross between an Albemarle Pippin, the Golden Delicious and a third variety that has yet to be identified. Since that time, the Harveys have sold Ginger Gold propagation rights to nurseries in Pennsylvania, California, Washington State, and even to the world's largest nursery in France, which will be propagating and selling Ginger Gold apple trees to 24 European countries including the former Soviet Union.

"It took us years before we could tell this story because there was so much pain and destruction from the floods. We felt badly that something

good came out of it. My family convinced me that it would be helpful to those who lost loved ones to know that something of beauty did come from the loss," Harvey continued.

Truly, the Ginger Gold is Mother Nature's perfect apple. Once peeled it doesn't discolor as do other apples; it has a natural wax finish which helps preserve the apple; and the limbs of the tree are almost perfectly spaced, cutting down on the work of the orchardist.

The best part about the Ginger Gold, one of the state's many Virginia's Finest varieties, is its taste. When first harvested it is somewhat tart, but within a week of the harvest it gets a very sweet flavor.

There now are about 15 commercial growers in Virginia who have planted Ginger Gold trees and are waiting for their first harvest.

"We can't produce enough to keep pace with the demand," Harvey noted. "We are having to limit our stores to Ukrop's in Richmond, Kroger in Charlottesville and Fresh Fields in the Washington, DC area. This will change as the commercial orchards, already planted in Ginger Gold, mature and produce apples.

## Supply and Demand Schedules For Ginger Gold Apples

### Supply Schedule

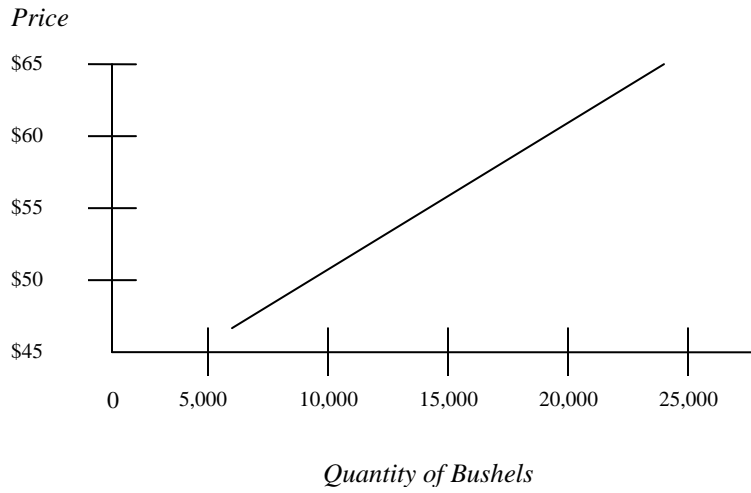
<b>Price</b>	<b>Quantity Supplied (in bushels)</b>
45.00	5,000
50.00	10,000
55.00	15,000
60.00	20,000
65.00	25,000

### Demand Schedule

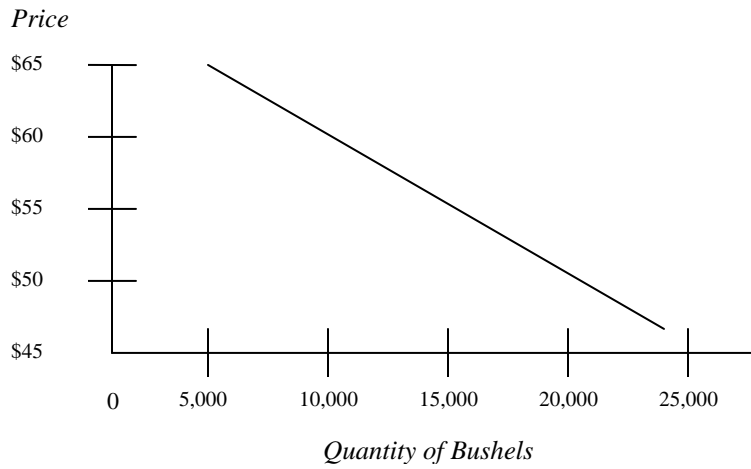
<b>Price</b>	<b>Quantity Demand (in bushels)</b>
45.00	5,000
50.00	10,000
55.00	15,000
60.00	20,000
65.00	25,000

# Supply and Demand Graphs

## GINGER GOLD SUPPLY CURVE



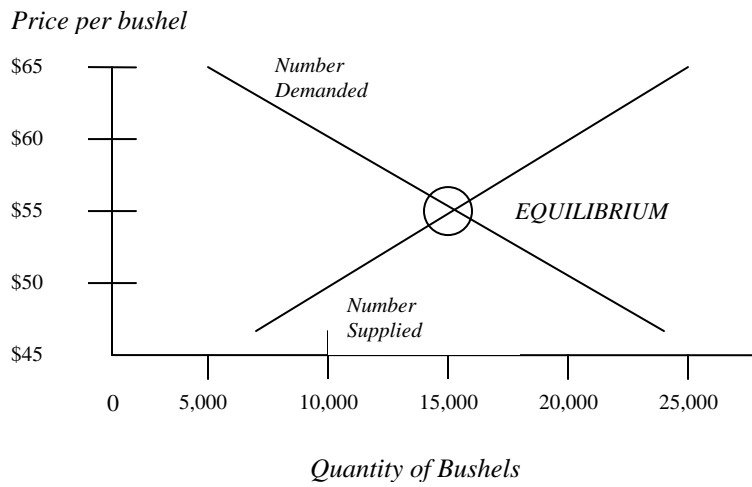
## GINGER GOLD DEMAND



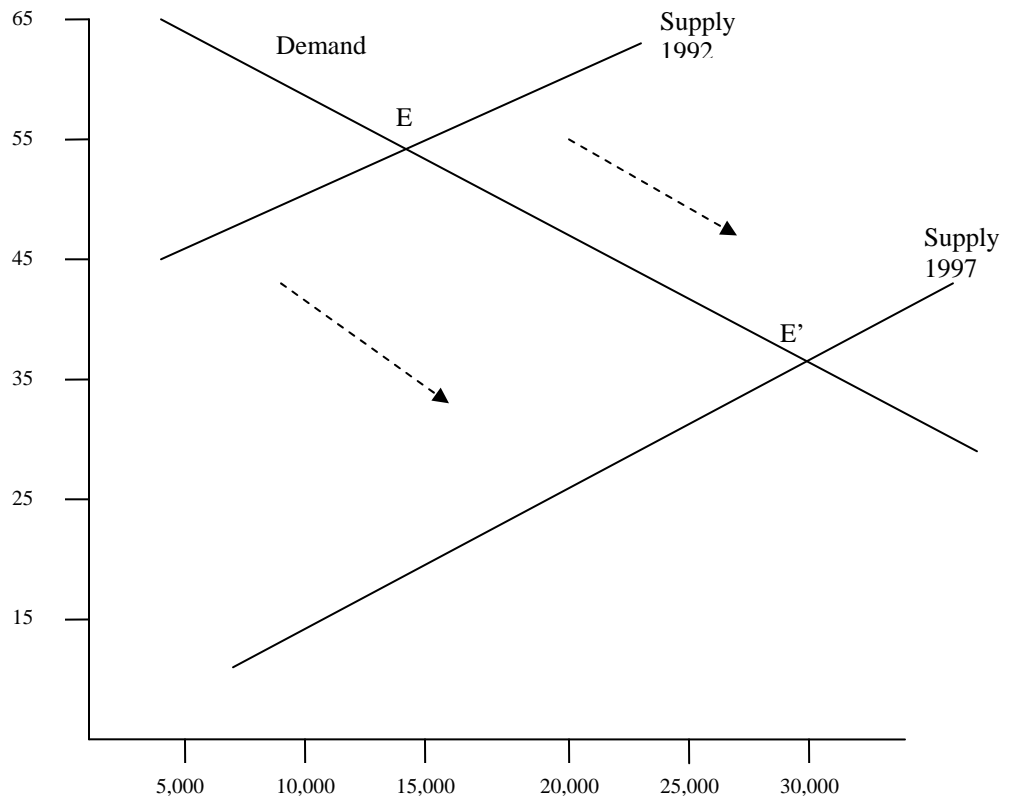
# Handout 4

## Constructing and Reading A Market Equilibrium Graph

### EQUILIBRIUM PRICE GRAPH



Shift in the supply curve caused by adding new sellers to the market.



## HANDOUT #4

### **Predicting Changes in Supply, Demand, and Price for Ginger Golds**

*This activity serves as a good review of supply, demand, and price.*

- A large national newspaper runs a feature story on the Ginger Gold reporting on its superior cooking and eating qualities. What will happen to the demand for the apple?
- In July and August the demand for Ginger Golds is high. What will happen to the supply and price of the apple?
- A late spring freeze in Virginia damages the apples' blooms. How will this affect the supply and price of the Ginger Gold in Virginia?
- As more Ginger Gold trees are sold, apple growers begin to produce and sell more Ginger Gold apples on the market. What will happen to the price of the apple?
- As peaches come into the season, the demand for Ginger Golds drops in local stores. What will happen to the supply and price of the apple?