

The Impact of World Events on the Petroleum Industry of Houston, Texas in the 1970s and 1980s

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GENERAL INTRODUCTION

Houston, Texas has been hailed as the “Energy Capital of the World.” In the late 1970s and early 1980s the city experienced an economic boom brought on by high oil prices. Houston (where my students reside) had low unemployment, increased real estate development, and widespread business expansion, spurred on by the growth of the international petroleum industry. By the mid-1980s the bottom fell out of the local economy due to lower oil prices. The city was left with empty office buildings, dropping home prices, and large industry layoffs. Supply and demand issues in the Middle East played an important role in this economic downturn. How did these events affect the lives of Texas families? What were the trickle-down effects? Recognizing the impact that world events had on the “oil crisis” of the mid-1980s will be the first goal of this curriculum unit.

The petroleum industry is an integral part of the Texas economy, employing many Texans. Jane Long Middle School, in Houston, Texas, has students from approximately forty countries each year. Ninety-two percent of our student body is economically disadvantaged. Their exposure to the work force has been, for the most part, via the service industry sector. Therefore, a second goal of this unit will be to guide my seventh grade students in a study of career options in the petroleum industry. It is my hope that knowledge of the above issues will prepare my students for a more in-depth study of economics at the high school level; encourage them to keep abreast of current events; and upon graduation, leave them better informed as to the job opportunities available within the Houston economy. (Lesson Plans I, II, III, and IV)

Unit objectives:

- Evaluate the causes and effects of economic boom-bust cycles on the Texas petroleum industry.
- Define the logistics of supply and demand.
- Use problem solving and decision making skills to pose solutions to possible future events.
- Prepare students for careers in the petroleum industry.

OIL AND THE ECONOMY OF HOUSTON IN THE 1980s

In the mid-1980s worldwide oil prices fell, sending the Texas economy into a tailspin. This curriculum unit will focus on the background of that event and most specifically, on the effect it had on the petroleum industry in Houston, Texas.

Background

The Organization of Petroleum Exporting Countries (OPEC) is composed of 11 member nations: Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates and Venezuela. These nations depend heavily on oil exports for their incomes. They produce 40 percent of the world's oil and most importantly, possess almost 75 percent of the world's recoverable reserves (*World Book*, Vol. 14, 855).

The petroleum industry in these countries had been controlled by the so-called "majors;" the large U.S. and European oil companies. The majors set prices for oil, decided when to sell it, and paid royalties to these host countries. If, under this concession system, the major companies needed extra petroleum to meet demands they turned to these suppliers. When the market price dropped, due to over production in 1959 and 1960, the host countries were expected to abandon the set price and thus lose revenues (*World Book*, Vol. 14, 855). OPEC was founded as a response to this practice; to secure a better return than was possible under the control of the multinational corporations. In the late 1960s, several of the members nationalized their oil fields and struck accords with the oil companies affording the governments more control over their natural resources and revenues. The OPEC cartel meets on a regular basis to set production levels with the hope of stabilizing world oil prices (*About OPEC*). Eventually competition within OPEC and between OPEC and non-OPEC producers would help lead to a price collapse in the fall of 1985 (Mabro, 77).

Instability in the Middle East

In the early 1970s the demand for oil began to outpace production. In October of 1973 war erupted between Egypt and Israel (the Arab-Israeli War). When the United States proposed a \$2.2 billion military aid package for Israel, the Arab states initiated an oil embargo of the U.S. and all other Israeli allies. Prior to 1973 the U.S. had sufficient reserves of oil. This excess stock prevented supply intervention from outside the country. But the high economic growth rate of the '60s, which increased oil consumption, gradually depleted that reserve supply (Bina, 2-3). By 1973 the U.S. had become dependent on outside sources to fuel its economy. Oil prices jumped from around \$3 per barrel before the Arab-Israeli War to \$11.65 per barrel. This increase was unprecedented in the history of oil. In the U.S. gasoline prices skyrocketed. Shortages ensued, resulting in long lines at American gas stations. The prices of consumer goods rose, due to increased shipping costs. "Even though the period of the oil embargo was brief and

supply conditions returned to normal at the end of 1973, the price of crude oil remained permanently at its new level.” (Bina, VIII).

The country went into recession. For Houston the picture was not one of total gloom. Higher prices meant the oil industry prospered and thus, the Houston economy. But fears of supply shortfalls and higher prices as a result of the Arab–Israeli War, and the later Iranian Revolution, and subsequent taking of American hostages lead to conservation and a decline in world consumption of oil. According to the official web site for the Organization of the Petroleum Exporting Countries:

The OPEC Statute requires OPEC to pursue stability and harmony in the petroleum market for the benefit of both oil producers and consumers. To this end, OPEC Member Countries respond to market fundamentals and forecast developments by coordinating their petroleum policies. Production limits are simply one possible response. If demand grows, or some oil producers are producing less oil, OPEC can increase its oil production in order to prevent a sudden rise in prices. OPEC might also reduce its oil production in response to market conditions in order to counter falling prices. (*About OPEC*)

In the early years of the organization, OPEC members attempted to stabilize oil prices by regulating production. Fears of supply interruption in the Mideast would send oil prices higher. OPEC responded by increasing production to level off prices. “[Later] the decline in world demand and growth of non-OPEC supplies were accommodated by reduction in OPEC output which fell 45% from 1979 to 1985” (Mabro). Eventually the OPEC members would see the above statute and subsequent pricing strategies as a limiting factor in their ability to compete in the world marketplace.

At the outset, the Iran–Iraq War (which lasted from 1980 to 1988) removed 4 million barrels each day from the world market. Crude prices jumped from \$2.75 per barrel in 1973 to \$34 per barrel by 1981 (*World Book*, Vol. 15, 349). Within an eight-year period, 1973–1981, world oil prices had jumped approximately \$33 per barrel due to a reaction to events in the Middle East. In 1980, with a perceived oil shortage, OPEC set the benchmark price of oil (the price everyone agreed to adhere to) at \$36 per barrel (Mabro, 3).

Government Regulation

While there seems to be a tendency in some sectors to blame OPEC and the instability in the Mideast for the oil crisis, the United States also played a hand in creating the setting for the coming bust. A series of government regulations meant to protect the U.S. economy ultimately would make it easier for OPEC to assert itself in the world oil market. President Eisenhower signed the Mandatory Oil Import Program (MOIP) in 1959. Imports of crude oil were limited to 9 percent of domestic demand. The law was meant to protect the domestic oil business. Instead, MOIP encouraged the creation of

OPEC. OPEC members wished to remove themselves from the foreign control of their pricing structure and market share (Economides, 126). By banding together and taking control of their own oil fields the OPEC members hoped to circumvent losses created by such foreign legislation. The major companies could no longer dictate to whom they could sell or limit their production. OPEC would choose their own markets and set their own prices. In 1969 Congress reduced the depletion allowance, the percentage of mineral production which was exempt from the federal income tax (Economides, 127). That act added to the production costs of domestic producers.

President Nixon signed the Economic Stabilization Act in 1970 which enacted price controls. Crude oil prices were frozen while production costs skyrocketed for the domestic oil producers as a result of the reduction in the depletion allowance. With imports limited and prices fixed the oil producers could no longer keep up with an ever-increasing demand. Nixon abolished import quotas in 1973, but the price controls for domestic producers remained in place (Economides, 127). “Price controls had the effect of suppressing domestic supply just as national demand was being stimulated. The combination was a godsend for OPEC” (Economides, 129). With domestic price controls still in effect and no production or price limits on imports, the OPEC nations now had an open door to the U.S. market without restrictions. During 1974 and 1975, U.S. domestic crude was selling for around \$7.27 per barrel. Those countries exporting oil to the U.S. were receiving an unregulated \$12.51 per barrel. Thus, United States domestic producers were paying a reverse import tariff (Economides, 130). Due to demand, the higher prices were accepted by the market place and OPEC obtained a strong foothold in the American arena. When Iranian crude was removed from the market during the 1979 Revolution, the U.S. oil prices were finally decontrolled (Economides, 134). This action allowed domestic prices to adjust to those of the world market. By 1979 the world demand had actually started to drop but it went unnoticed by the producers who were focused on the possibility of supply interruption due to Middle East crises. The perceived possibility of oil shortages allowed prices to be driven up and with the end of deregulation, the prices stayed high.

Boom Period

With the Iran–Iraq War showing no signs of easing and political tensions continuing in the Mideast there was a widely held belief that shortages would continue and prices would stay high. In truth, there was plenty of oil. Mexico was becoming a major producer and large oil reserves were being developed in the North Sea. But the prices stayed high; this, thanks in no small part to OPEC’s benchmark price of \$36 per barrel. While the rest of the USA suffered under a recession due to high energy costs; Houston’s petroleum based economy continued to prosper under a boom period which began with the higher oil prices brought on by the Mideast crises of the mid to late 1970s. “High oil prices made many marginal fields (those with high cost production) attractive. Huge exploration budgets and development costs in difficult locations became quite bearable”

(Economides, 102). The higher prices for oil allowed for rapid industry wide expansion and increased hiring and exploration. Houston's oil based economy was booming.

David C. Cook, vice president of Industrial Brokerage for Horne Company Realtors, said in 1982, "Houston will continue to ignore the declared recession and will prosper in spite of nationwide gloom and doom profits." (*Post*, Jan. 15, 1982). He predicted that thousands of new residents would move to Houston each week, mainly from the Midwest and New England, areas which had been hard hit by the recession. Thousands had already flocked to Houston in search of jobs and a new start. This growing population would require residences and increased retail space to keep pace with their needs. During this same time period John J. Coad, president of Memorial Realty Corporation, made the same positive predictions.

"Nationally this year has seen the residential real estate market drop 50 percent from an all time high in 1978. But in Houston we are seeing increases. Strong migration and an apartment shortage are among the reasons. Real estate investment is one of the best investments in town." (*Post*, Jan. 15, 1982).

Many developers and bankers felt the boom would never end and acted on that assumption. Large office buildings were planned by developers to keep up with the demand for new space. Many of these were built on speculation. Texas banks, with their large deposits from the oil companies, were more than eager to make loans on such ventures. The result was a construction boom not only in large office buildings but in retail space, huge apartment complexes, and private homes. "The more than doubling of office space in Houston since 1969 has come largely from the energy opportunities of the '70s. In the 1980s energy will give a major impetus to Houston's economy." This was the opinion of James H. De Nike, vice president of oil products, Shell Oil, in January 1980 (DeNike). He went on to say that the economic outlook for Houston in the field of energy was good. It was a widely held belief. There was a "can-do" attitude in Houston and the rest of Texas. As the boom continued, small businesses such as well service companies, equipment producers, and independent drillers began to expand. This expansion was easily accommodated by the banks. Many established businesses took out large loans to increase production. "Banks were handing out money to anyone who walked in the door asking for it. Young kids who had never drilled a well in their lives were becoming millionaires" (Bina, 6). In 1980, everyone in the Texas oil industry was working, the economy was booming, and many thought the price of oil would continue to rise.

Oil Bust

Houston's resistance to economic hardship was the talk of the nation in 1981. By 1982 and 1983 the strain of worldwide recession finally took hold. The energy slowdown left its mark on every segment of the Houston economy (Anderson). How did this happen?

During the Iranian Revolution and the Iran–Iraq War prices for petroleum were raised out of panic and fear (Mabro). The market place began competing for all available oil supplies. This drove OPEC and non-OPEC prices up. However, with the new areas of supply (especially in the North Sea) supply problems were perceived rather than a reality (Mabro). In Texas, underground reserves were becoming depleted. It took more time and money to extract oil from these older wells. But, with the higher price of oil, exploration and renewed extraction from these older stripper wells was more than feasible. The wells were reopened. The petroleum industry was operating at full throttle. The market place took on a life of its own, triggered by reactions to international events. The producers of any product are not likely to announce: “You don’t need to pay this much, our supply will meet the market’s demand.” Thus, the price of oil stayed artificially high. Eventually the reality that supply exceeded demand would cause a lowering in prices.

Prices were at a high level of \$36 per barrel. But by 1981 the demand for OPEC oil began to slacken due to conservation and worldwide recession brought on by higher oil prices. Newer, non-OPEC producers began charging less. The OPEC members met and decided to drop their agreed upon benchmark price to stay competitive. By 1984 the benchmark price had been dropped to \$28 per barrel, the price paid for North Sea Oil (Mabro 75). Several of the OPEC members wanted to lower the price even more, hoping to undercut their competitors and grab a dwindling market share. Not all OPEC members were willing to stay at the benchmark \$28 per barrel. Oil not being a renewable resource, maintaining price and cutting production quotas would have been the wiser choice. But several OPEC members needed immediate revenue. For most of the members, oil provided most of their national income. By lowering prices they also hoped to corner future markets (Mabro). At lower prices, the multinational corporations (British Petroleum, Exxon) might forestall cost prohibitive new development which was usually funded during times of high profit. It was hoped that this would create, by the 1990s, a demand for OPEC oil which was already on reserve (Mabro). OPEC members dropped the price again.

In the U.S. the cost of production began to outweigh the selling price. At higher oil prices, small independent producers were able to accommodate the higher production costs of stripper wells with their small daily output. At OPEC’s new price of \$8 - \$10 per barrel the wells shut down and crews found themselves unemployed (Mabro 3). Many of the independents were overextended at the banks and were left without a source of income. George W. Bush operated Arbusto Energy and Spectrum 7 in Midland, Texas. These companies were active in oil exploration and development. By 1985, Spectrum 7 had a net loss of \$1.6 million. The company had reserves, but the price of oil (\$9 per barrel) made it unprofitable to drill. The company lost money for investors and owed \$3 million to the banks. Bush was lucky. The company was bought out by a larger oil company (Lardner). Others were not as lucky. Many companies went out of business. The active oil rig count in the U.S. was 4,521 in 1982. By 1987 it fell to 1,000 (Feagin, 283). With lessened production the attending service industries and suppliers experienced

what were to become industry-wide layoffs. As suppliers cut back production, the Port of Houston experienced a 23 percent decline in tonnage shipped out between 1981 and 1983, and began laying off dock workers. Unemployment hit an unheard of 9.3 percent in 1983 (Schnitzer). By June of '86, unemployment in Houston was at 12.6 percent (*Chronicle*, July 23, 1986).

In January of 1982 Mission Manufacturing of Houston employed 3,000 workers. Mission produced drilling equipment and mud pumps. By September of 1982, 300 employees were left on the payroll. Supervisors were emptying the trash cans. One of those Mission employees was my brother-in-law. My sister has recalled that there was a certain sense of relief when the layoff finally came. In addition to financial stress, families suffered from the emotional stress of wondering when the inevitable "pink slip" would arrive. Through a family friend my brother-in-law found short-term employment on a Brown and Root energy related project. But that too ended and he then delivered coffee supplies to local office complexes. He was glad to have the work. Like many other Houstonians, he thought it wise to change careers. He returned to school and has since been employed as a respiratory therapist in the Houston Medical Center.

My sister's family fared better than many others did. Being a nurse, her job was not threatened. It provided the income necessary to keep the family afloat. Others were not as lucky and suffered the consequences of trickle-down economics. People who lost their jobs or anticipated layoffs stopped discretionary spending. Restaurants, retail stores, movies, and other entertainment venues saw a slow-down, which resulted in more layoffs. These low wage earners were especially hard hit as they were the least likely to have back up resources. And, with less spending, sales tax collection fell affecting city revenues and services (Feagin).

Ancillary service companies also suffered as a result of the trickle-down effect of the recession. The experience of the graphic arts community gives a prime example. Much of the advertising and production work for the Houston-based oil companies was handled by independent graphic artists who worked in-house on specific projects. Many of those artists were my close friends and they eventually formed graphic arts production companies in the early '80s to keep up with the demand for services. Banks happily granted loans for equipment and expansion. By the mid-1980s the oil companies were downsizing as a result of the recession. The graphic arts people were letting employees go and trying to sell very expensive equipment at rock bottom prices. The only people who might possibly be interested in such deals were trying to sell off their own equipment, closing their doors, and in many cases, filing for bankruptcy.

Construction in Houston came to a near halt resulting in even more layoffs. "The Plumbers Union saw 40% of its membership unemployed as a result of the slowdown" (Feagin, 269). There was already too much office and retail space due to speculation. Entire buildings sat empty. The city held 30 million square feet of unleased office space in 1985 (Sowers). Even promises of low rent and incentives such as a free year's lease

could not help attract enough tenants. The buildings had been built on the assumption that the boom would continue. The trickle-down from construction added to the city's unemployment. The need for raw material for construction went way down, affecting the amount of tonnage coming into the Port of Houston (Anderson). This added to the already sluggish Port economy. There were, however, some beneficiaries to this misfortune. Businesses looking for new space were able to sign very attractive leases and the availability of office space would eventually attract new commercial interests to the city, providing much needed employment.

Houston had been a "mecca" in the early 1980s, attracting people from depressed areas. Now they were leaving. Some apartment complexes offered free Mexican vacations to encourage people to move in. The housing market plunged. With so many homes for sale, prices dropped below the prices originally paid by the owners during the boom years. Local real estate experienced a buyer's market. For those whose jobs were not in jeopardy a unique opportunity existed. Homes which had formerly been out of their reach were now begging to be sold at depressed prices. In 1988, the above mentioned sister's family purchased a four bedroom, two bath home for \$36,000 with a low interest loan. The previous owners held a high interest mortgage from 1973 of \$60,000. For many owners, selling their homes at lower prices still left them with a debt to the mortgage company. Some families opted to walk away, sending their property into foreclosure. For those families it meant years of bad credit and even bankruptcy. For the banks and lending companies it would lead to a loan crisis and the possession of thousands of unoccupied houses.

CONCLUSION

The price of oil will always fluctuate in reaction to supply and demand. In the '70s and '80s a readjustment in the world marketplace occurred due to the formation of OPEC and the deregulation of U.S. domestic crude prices. The industry was experiencing growing pains which were exacerbated by events in the Mideast. The suddenness of the price increases from the mid-70s to mid-80s helped create the crisis. A smoother transition in the increase and later decrease of prices might have avoided that crisis (Bina, 5).

It will be important for my students to understand that layoffs can happen in any industry. Houston, of course, would recover thanks to a more diversified economy and the return of higher oil prices. All of that empty office space and inexpensive housing would help to attract new industry to the city. By 2000, oil had reached \$30 per barrel (*Markets – Oil*). It is not in anyone's interest to keep prices low on a limited resource. Conversely, it is not in OPEC's best interest to allow prices to go too high. Higher prices encourage non-OPEC producers to spend large sums on exploration and new technology, which could open new fields of competition. Petroleum prices have experienced fluctuations in the past and will in the future. Petroleum is a \$2 to \$5 trillion industry, the largest in the world and the most international (Economides, 5, 100). Pittsburg saw the loss of the steel industry and Detroit lost much of the automotive industry to other

countries. Those cities suffered long lasting economic effects. But Houston, with its firmly established infrastructure of service industries and international company headquarters will remain the “Energy Capital of the World,” no matter where the energy is found (Lesson Plans V and VI).

LESSON PLANS

It should be noted that my seventh graders would have already studied the history of the petroleum industry in Texas. For newcomers to this study I would recommend planning a geography lesson dealing with the locations of oil fields around the world.

Lesson Plan I: An introduction to current world events and the effect they can have on our daily lives.

Objectives:

- Analyze information using cause and effect.
- Make generalizations and predictions.
- Define logistics of supply and demand.
- Communicate orally.

It is important that a current news story be used so the students will see the relevance of the entire lesson: events happening in other parts of the world can have a direct relationship to their lives in Houston. Since the unit topic is older than most of my students, I feel this first step is very important in insuring that they understand why it is expedient to keep abreast of the news.

The news event chosen should be one which will lead to a discussion of supply and demand, thus preparing the class for Lesson Plan II.

Step I

Separate the class into groups of two to four students.

Each student will place the location of the news story on a world map. The country should be labeled along with the capital city and the exact location of the news event. The students should also pinpoint their town or city and state on the map.

Homework assignment:

1. Learn the form of government practiced in this country.
2. What title is held by the head of state? Who is the head of state?
3. What language is spoken there?
4. What is their form of currency called?

Extra credit: What type of relationship does the United States have with this country?
How could this make a difference in how this current event might affect our lives?

This item is meant to prepare the class for the debate questions at the end of the unit.

Step II

The teacher will give any necessary background information.

The groups will read the article and discuss it.

Each group should be able to list at least three areas in which this situation might affect their personal lives.

Step III

Teacher lead discussion focusing on the elements of supply and demand found in the story. This discussion should serve as an introduction to the importance of this unit of study. When the supply of a desired product is cut, the price usually goes up and it can be an event on the other side of the globe which triggers that price increase.

Example for Lesson Plan I

I would inform the students that by starting our unit of study with a current news item they will be better prepared to understand how events in other areas of the world can have a direct influence on their lives here in Houston. This should provide a clearer understanding of how supply and demand issues in the Middle East played an important role in the Texas “oil crisis” of 1986.

At the time of this writing, cow diseases in Europe were making headline news almost everyday. As a result of the cow diseases, beef imports from Europe to the United States had been stopped. With less beef available, will the cost of U.S. beef go up? This is a good place to discuss supply and demand. What if Americans become leery of eating beef? In this scenario, who could possibly face job layoffs? Or, could this then result in price wars between the large hamburger chains? That outcome would be an advantage to the consumer. But what other areas might be affected by this event in Europe which would result in a disadvantage to the consumer? On Thursday, March 29, 2001, the *New York Times* ran the story “Feeling the Pinch on Luxury Leather.” How many items are manufactured from leather? The *Times* article focused on the finest quality leather, which comes from Europe and is used for jackets and furniture. Since fewer cattle were slaughtered for food, less leather was available for sell. Would you shop for leather furniture at this time? What about designer clothing? With less leather available, the price of Texas steer hides used for shoes rose 11 percent in six weeks (Kaufman). What might you expect to see the next time you shop for shoes? Who do you think ultimately picks up that 11 percent increase? List other items made from leather.

The importance of this lesson is to show that when the supply of a desired item is cut off, the price will be forced up. The same thing happens in the oil industry. If a source is cut off then the consumer will see a price increase at the gas pump and in other products related to the petroleum industry. Conversely, if the market is flooded, competition for customers will force the price down. With this brief lesson in supply and demand the students will be better prepared to understand how current world events can have an impact on the Texas petroleum industry and ultimately their lives.

Lesson Plan II: Supply and demand.

Objective:

Define the logistics of supply and demand.

Step I

Hand out fake money. I like to print the money on colored paper using our cluster teachers photographs.

The money is randomly handed out in packets of \$15, \$25, \$50, \$75, and one of \$150.

Step II

Hold an auction for two certificates worth 25 bonus points on a test.

These are the only certificates available at this time.

Let the students discuss why they did or did not bid.

For those who stopped bidding early, or did not bid at all, was it a financial decision or a lack of need?

Step III

Discover 20 more certificates.

Hold another auction.

When finished, discuss why the prices seemed to drop as the supply increased.

Step IV

Discuss the strategy the students used in their bidding.

Discuss supply and demand.

Study contemporary gasoline prices as an introduction to the unit.

Lesson Plan III: Vocabulary and crossword puzzle.

Objective:

Define words pertinent to the understanding of the Texas petroleum industry.

Step I

Using the following vocabulary words, the students will fill in a crossword puzzle:

1. oil – a mixture of hydrogen and carbon and other compounds. These mixtures are called hydrocarbons.
1. crude oil – oil as it occurs naturally underground.
2. reservoir – an accumulation of petroleum below the earth's surface. It consists of tiny drops of oil that collect in the pores of such rocks as limestone and sandstone.
3. oil field – an area that contains one or more reservoirs.
4. viscosity – thickness.
5. petrochemicals – chemicals processed from oil and gas. They are used to produce a variety of products from plastic to clothing.
6. oil reserves – recoverable amounts of oil or gas. Petroleum companies try to find enough new oil and gas each year to replace what they have taken from existing wells. Reserves represent oil which has already been discovered.
7. derrick – a tall steel structure that holds the equipment used to drill an oil well.
8. drilling rig – the derrick, hoisting machinery, and other equipment used in drilling an oil well.
9. roughneck – worker on an oil drilling rig, especially a member of a crew that feeds pipe into a well.
10. stripper well – well that produces 10 barrels or less per day; a mature well.
11. wildcat well – well drilled in an area where no oil or gas has been found.
12. dry hole – a well that fails to produce oil or gas in commercial quantities.
13. offshore well – a well drilled in an ocean, sea, gulf or lake.
14. barrel – standard unit used to measure crude oil and most petroleum products. One barrelequals 42 gallons (159 liters).
15. enhanced recovery – any method of adding energy to a reservoir to force oil to flow into a producing well. The techniques for pushing oil up a well, especially in mature wells (stripper wells), can be very expensive.
16. mud – a fluid which lubricates the drill bit.
17. drillbit – found at the end of the drill pipe, it grinds away rock and digs the well.
18. recover – bring oil or gas to the surface.
19. lifting cost – the amount it costs to drill a well and bring it into production.
20. refinery – a manufacturing complex for purifying products such as metal, sugar, petroleum or other things.
21. royalty – money paid to a landowner for oil or gas produced on his or her land; a share of the profits.
22. benchmark price – selling price which all members of a group agree to adhere to.
23. quota – puts a legal limit on the amount that can be imported into a country. This can create shortages which cause prices to rise.
24. nationalize – when a government takes over control and ownership of an industry.

25. embargo – an order from one government, or several governments, forbidding trade to and/or from a particular country.
26. import – to bring something (goods) in from a foreign country for sale or use.
27. export – to send something (goods) out of one country for sale or use in another country.
28. tariff – taxes on imports or exports.
29. deregulation – the removal of regulations, or laws.
30. investment – using money to buy something that is expected to produce an income or profit.
31. profit – what is left when the cost of goods and of carrying on the business is subtracted from the amount of money taken in. To make a financial gain from a business.
32. recession – period of temporary business reduction (slowdown); shorter and less extreme than a depression.
33. layoff – dismissing of workmen temporarily. When large numbers of people in the same industry lose their jobs.
34. economic depression – severe reduction in business activity.
35. boom – sudden activity and increase in business, prices, value of property, number of available jobs; rapid growth.
36. bust – to fail financially, loss of jobs, drop in property values; rapid slowdown.
37. trickledown – when one event causes others to happen; a chain reaction.
38. buyer’s market – condition that arises when more goods are offered for sale than people are immediately willing to buy. Prices are usually low in a buyer’s market.
40. depleted – used up; empty.

Step II

Go to the web-site for *Puzzle Maker.com*. Choose the vocabulary words and definitions you wish to use from the above list and type them into the “Crisscross Puzzle” format. The site will produce a crossword puzzle that can be downloaded. This Discovery Channel site allows teachers to make 50 copies of each puzzle. Please read the site’s copyright information.

Lesson Plan IV: Professions in the petroleum industry: *Yellow Pages* exercise.

Objectives:

- Identify jobs present in the Texas economy.
- Communicate orally.

As we cover the information in the narrative, I will expect my students to take notes for an end of unit test. (I have not included a test in this curriculum unit. Each teacher will be best qualified to decide the level of difficulty and type of assessment best suited to his or her student population.) As this narrative information will take several days to

cover we will spend half of each period taking notes. The rest of the time will be spent in an activity meant to enhance their knowledge of job possibilities in the industry. The class will have already studied the history of the Texas petroleum industry and the techniques used for the extraction of oil. In this activity they will study the vast array of employment opportunities available in the Houston area. In spite of the fact that Houston suffered through a depressed economic period in the mid-1980s, the petroleum industry still remains one of the largest employers in the area. I would like my students to be aware of the numerous employment possibilities offered in this area and of the requirements for those jobs. Of course, this activity may not be of use to everyone, depending on their locale. But, the technique can always be applied to the study of other areas of employment within a given area.

Materials needed:

A set of *Yellow Pages* for each group. New phone books are distributed each Spring. I ask faculty members to bring me their old sets.

Step I

Separate the class into groups of two or four. For this activity, I prefer to pick the group members so there is someone capable of performing the different levels of tasks.

Using the *Yellow Pages*, give me the following information:

1. How many listings will you find under *Oil* and its related categories?
2. List those categories. (Do NOT list *Oil Change and Lube* or *Oils – Edible*.)
3. How many listings will you find under *Petroleum*?
4. List them.

One person in the group should be designated as the record keeper. All others should help with the research.

Step II

To keep the students from writing the first entry they see, the following rules will be given:

1. Do not list any business starting with an "A."
When asked to list more than one business, each answer must start with a *different letter of the alphabet*.

Using the *Yellow Pages* the students will answer the following questions:

1. Check the *Oil Field Service Guide*. Who might you call for divers to work on your offshore oil rig?
2. Name a company which produces drilling mud.

3. The Red Adair Company and Boots and Coots are famous for extinguishing oil well fires. Name another such company.
4. Name two companies that drill oil wells.
5. Name two oil refiners.
6. Check the *Oil Producers* listing. List 3 company names that you recognize.
7. Name four companies that handle oil and gas exploration and development.
8. From whom would you order ring gaskets?
9. Name four companies which sell oil field supplies.
10. Name four companies which sell oil field equipment.
11. Name two oil brokers.
12. Who would you call for seismographic services?

Step III

This step will be a homework activity.

At least two people from each group will be asked to phone various companies and request information for the group.

The teacher will pick the companies to be called. Each group will be given four companies.

No company will be called more than once. With 14 pages of single spaced oil related listings in the Houston *Yellow Pages*, this should not be a problem.

The caller should ask for Personnel or Human Resources.

After introducing themselves they should explain the reason for the call:

1. My Texas History class at Jane Long Middle School is studying the petroleum industry.
2. Several of us have become very interested in seeking employment in this area when we graduate.
3. I know your time is valuable. I will be the only student contacting you. Would you have time to answer a few questions about your company for my research project?
4. May I have your name? Address?

If the respondent is agreeable, the following questions should be asked:

1. What service does your company perform? Please describe.
2. What job opportunities does your company offer?
3. What are the educational requirements?
4. What would the salary range be for those positions?
5. Do your jobs require travel or moving from Houston?
6. Do you have any type of information you could send me about your company?

Thank you for your time.

Step IV

Each group will prepare a report based upon their phone interviews and present it to the class.

Step V

Thank you letters, signed by all group members, will be sent to the participating companies.

Lesson Plan V: Trickle-down economics.

Objectives:

Analyze information using cause and effect.

Step I

The students will use their narrative notes to find examples to use in this exercise. Using poster board the students will draw a chart showing the flow of trickle-down economics.

Example: oil prices drop-----people are laid-off from jobs-----people stop spending money on unnecessary items-----salespeople and restaurant workers are laid off due to lack of business-----lower sales mean fewer city sales taxes are paid-----slowdown in city services due to lack of funds.

Lesson Plan VI: Discussion and debate.

Objectives:

- Orally support a point of view.
- Organize and interpret information from a variety of sources.
- Use problem solving and decision-making skills to pose solutions to possible future events.
- Analyze how scientific discoveries and technological innovations have resulted in interdependence among Texas, the United States, and the world.

Step I

For seventh graders it will be necessary to provide background information on some of the following topics.

Give guidelines for debate.

Step II

The notes taken by the class during the study of the narrative and the vocabulary list will be of use in preparing for the debates.

The students will form groups and prepare to debate the following topics:

1. Should you work in the petroleum industry?
2. Should the United States intervene in world affairs when our economic affairs are threatened? (Example – Kuwait)
3. What part have international events played in the fortunes of the Houston petroleum industry?
4. Should we open the Alaska National Wildlife Refuge to oil exploration?
5. What current world crises might affect our supply of oil? How should the United States react to these events?
6. How might one financially protect oneself from economic downturns?

Step III

Each group will present a 20-minute debate.

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