

Mud Bugs: Supply, Demand, and Natural Resources in Louisiana

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Amy Moore's third grade students could not wait to get to school to share dioramas they had created about the various natural resources in Louisiana. After the presentations, the class was planning to celebrate with crawfish boil! Brandon's dad is a crawfish farmer, and he agreed to share part of a day's crop with Amy's class. The crawfish boil and sharing of student's dioramas was the culminating activity in a unit of study on economics. Louisiana's land, coast, and inland waterways are home to many natural resources such as seafood, petroleum, natural gas, and timber—and freshwater crawfish, or “mudbugs” as we locals like to call them. These natural resources are vital to Louisiana's economy.

Supply and Demand

Throughout this one-week unit of study, Amy taught and reinforced basic economic terms such as “consumer” and “producer,” “scarcity” and “surplus,” and “supply” and “demand.” In a lesson about supply and demand, Amy asked students to think of an item that they really wanted for their birthday. This was a query to access their prior knowledge. She invited students to discuss with their “shoulder partners” whether they had received everything they wanted on their last birthday. After several students said that they did not get what they wanted, Amy recalled how stores sometimes run out of a popular toy. She explained that having toys lined up on the store shelf and ready to sell is an example of “supply.”

Building on this introduction, Amy directed the student's attention to a selection from a *BrainPOP* video about supply and demand.¹ Tim and Moby, the two main characters in the video, explain the basic concepts of supply and demand using the example of “demand for a new video game.” After this animated introduction to the concepts, Amy stopped the video and explained that supply and demand determine the price of something for sale. She used the example of crawfish in Louisiana. If more crawfish are produced (and demand stays the same), then farmers in Louisiana will lower the price of their crop. However, if the previous summer was exceptionally hot

and dry, then not as many crawfish would have been produced. The crawfish farmers will then be able to charge a higher price for the crawfish (if consumer demand stays the same). The price can be thought of as the point where both producers (market supply) and consumers (market demand) reach agreement.

Accessibility and Costs of Production

In another video segment, the characters Tim and Moby introduce the term “accessibility.” Amy explained that just north of the school, in another parish, a new natural gas field was recently discovered. Using Google Earth, Amy displayed the location of the school and then zoomed in to where natural gas had been discovered.² Addressing, math, science, and geography standards, Amy challenged the students to determine the distance from the school to where the natural gas was discovered.³ The class discusses what natural gas can be used for. “My mom uses natural gas to cook and we use it to heat our home.”

Amy then asked, “How do you think they gain access to the natural gas?” The students were not sure, so Amy explained that obtaining a natural resource costs money, and this cost will be reflected in the price that consumers pay. For example, to obtain natural gas, an oil company often has to drill far down into the earth to retrieve it. Drilling is a cost to the company, which has to obtain permission from landowners to drill, observe safety precautions, and pay for the workers, equipment, and energy needed to cut a hole far into the earth.

Producing a Food Product

Amy also challenged the students to think about the natural resources that are used in raising crawfish.⁴ Drawing the student's attention to the smart board, Amy introduced the history of the crawfish and how they are commercially raised in Louisiana today. Crawfish, Amy explained, need fresh water to grow. They were harvested traditionally by Native Americans in the Atchafalaya River in south Louisiana. Switching programs on the smart board, Amy went back to Google Earth and zoomed into south Louisiana. Amy had placed a ‘marker’ with Google Earth



Photos by Jon Sullivan/commons.wikimedia.org

Three boiled crawfish, ready to eat. Inset: A freshwater crawfish.

where the school is located and the parish north of the school where the natural gas was found. From the school, she panned southward and showed the Atchafalaya River and the bayous of south Louisiana where the crawfish traditionally grew.

Amy explained that today, most crawfish are grown in “commercial ponds” that are only 8 to 24 inches deep and are flooded in the fall when the female crawfish are ready to lay their eggs. If the winter is severe and the water is too cold, the crawfish will not live. This will result in lower supplies of crawfish, which may result in higher prices.

A Two-Year Investment

A student eagerly raised her hand and asked Amy, “Why do we see crawfish ponds in the summer with no water in them?” Amy explained that it takes approximately two years for crawfish to mature. After adult crawfish are harvested, ponds are drained to replicate the natural cycle of the rising and lowering of the rivers and bayous where the crawfish naturally live. Crawfish will burrow into the mud as the water level diminishes. The immature “mud bugs” molt when they grow too large for their shells. If the crawfish do not dig deep enough or if it was

extremely hot and dry, the crawfish may not survive.

Human and Capital Resources

Amy had the students use a graphic organizer to list all the natural resources that they could think of that are used in the crawfish life cycle. After a few minutes, Amy asked for volunteers to share their thoughts. Utilizing a t-chart on the board, Amy described two more economic terms, “human resources” and “capital resources.” Amy challenged the students to think about what human capital means and how it can be used in crawfish farming.⁵ She listed human resources under one branch of the chart (ex. labor involved in feeding and harvesting), and capital resources (such as land, nets, and water pumps) under the other branch.

Fair Competition

Making the connection to natural resources in Louisiana and other parts of the world, Amy asked students to speculate on whether there were enough crawfish raised in Louisiana to meet the demand for this food product “in our own state.” She then explained that 90 percent of the crawfish grown in Louisiana is



Crawfish and tiki people. Mardi Gras street costumers in the French Quarter. Inset: A crawfish and boudan pobay (poboy) sandwich.

eaten in that same state. However, China has become a leading exporter of crawfish to the United States. What are some of the advantages of having a domestic (grown in the United States) source of this food? How might a new supply of crawfish, coming from overseas, affect the market? Does the federal government have a role to play in regulating food markets to assure “fair trade”?⁶

A Rousing Conclusion

To conclude the unit of study, Amy asked students to think about the various natural resources and agricultural products of Louisiana such as oil, natural gas, crawfish, lumber, cotton, soybeans, sugarcane, and rice. Amy asked students to write a short report and create a diorama about the mining, production, or conservation of a natural resource in Louisiana. She gave students two days to work on these projects, with the promise of a celebration at the end.

Educational standards for economics call for third graders to learn about concepts like “supply” and “demand” as well as natural, capital, and human resources that are required to create products for market. These abstract terms came to life in the classroom when Amy applied them to discussions about the local economy—which touched on things and places that students had experienced in their own lives. Natural resources

and agricultural products were also the inspiration for using maps, graphs, and informational charts.

The following week, Amy would begin a unit on festivals in Louisiana, in which learning about the annual Mud Bug Festival promised to be a big hit. But first, there were dioramas to create, reports to write ... and crawfish to eat! 🍤

Notes

1. BrainPOP, “Supply and Demand,” (FDW Media, Inc.), www.brainpop.com/social-studies/economics.
2. Google Earth, earth.google.com.
3. National Council for Geographic Education, *Geography for Life* (Washington, DC: NCGE, 1994).
4. National Council on Economic Education, *Voluntary National Content Standards in Economics* (New York: NCEE, 2005).
5. National Council for the Social Studies, *Expectations of Excellence: Curriculum Standards for Social Studies* (Washington, DC: 1994).
6. “In the fall of 1996, U.S. domestic crawfish producers filed a petition with the U.S. Department of Commerce (DOC) and the U.S. International Trade Commission (ITC) under the U.S. antidumping law with respect to imports of crawfish from China. On August 29, 1997, the ITC ruled that the Chinese were in fact dumping crawfish in the U.S. by selling below the fair market value in the host country. This opened the way for the imposition of tariffs ranging from 91% to 200%.” — From “US China Crawfish Dispute,” www1.american.edu/TED/craychin.htm.

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