

AI and the Economics of Prices

Why?

Understanding the economics of pricing is useful for students as they navigate the world of consumerism, business, and personal finance. In this lesson, designed for a middle-school social studies course, we will explore pricing concepts with the help of generative AI. Using the analysis capabilities of AI, students will gain practical insights into how prices are determined, the factors influencing them, and the impact of pricing decisions on individuals and the economy.

Materials Needed

- Computers with access to generative AI (ChatGPT, Bing Chat, or other chatbot)
- A projector to show information

Time needed

Approximately 45 minutes

Objectives

- Students will be able to analyze and explain the various factors that contribute to the pricing of a product.
- Students will be able to utilize a generative AI tool to gather and interpret information about economic concepts
- Students will be able to critically assess the impact of a profit motive in the pricing of products

Key Concepts & Vocabulary

- **Cost of production** - How much it costs a company to produce a product, including the materials, labor, and utilities.
- **Demand** - How many people want to purchase a particular product at a specific price.
- **Profit margins** - The amount of money the company makes on each product sold, after subtracting out their costs.

Lesson

Introduction

1. Present a product to the class. This could be anything from a cell phone, or popular toy, to a basic commodity such as a gallon of milk. (Show an image of the item on a projector, or have one in the classroom)
 - a. Ask students to see how accurately they can guess the price of the product. Then tell them the actual price.
 - b. Ask them to suggest ideas for why they think it costs what it does. Write answers on the board.
2. Briefly explaining the concept of pricing in economics, emphasizing factors like

the cost of production, demand, and profit margins.

3. Introduce the concept of generative AI and how it can assist in understanding complex topics like economics.
4. **Bing Chat may be especially helpful for this lesson** because it can analyze pictures and search the internet to find information (see example at the end)

Task Assignment

5. Divide the class into pairs or small groups
6. Each group will use generative AI, such as Bing Chat or ChatGPT, to break down the price of a product.
 - a. Either provide students with ideas for specific products to ask about, or ask them to determine what products they are going to explore.
 - b. Some product suggestions: Shoes from a popular brand, a snack, a new book, a board game, a smartphone, a backpack, a video game console, a bicycle, a streaming service subscription (per month), a metal water bottle, a pair of earbuds
 - c. Students should search online to find the actual price for the product. When they first prompt the AI, though, they should **not** include the price.
 - d. Prompt: "We are exploring the economics of pricing. How much would you say a ___ should cost?"
 - i. At this point, students could include a picture of the item if they're using a chatbot that allows image uploads. (see example at the end.)
 - e. Students get the cost suggested by AI and compare that with the actual cost they found online. They may ask about the difference in cost. (see example at the end.)
7. Provide a structured set of questions that students can ask the generative AI about the particular product:
 - a. "What are the typical manufacturing costs for a product like this?"
 - b. "How does marketing impact the price?"
 - c. "How does branding affect the price?"
 - d. "How much would the company be likely to make on each product sold?"
8. Provide time for students to interact with generative AI, asking their assigned questions.
9. Encourage students to note the AI's responses and any additional insights they gather.

Presentations

10. Have each group of students briefly present what they learned about their product and its price. Ask them what they learned from the study.
11. Discuss how generative AI helped them understand what goes into the product's pricing.

Discussion Questions

- How did the pricing factors for different products vary among groups, and what does this tell us about how diverse products are priced?

- In what ways do consumer preferences and behaviors impact the price of a product? Did you find any examples of this in your research?
- What role do marketing and branding play in determining the price of a product? Provide examples from the products you analyzed.
- How did using generative AI enhance your understanding of product pricing? Were there limitations to the information provided by AI?
- Reflect on a product you wanted to purchase largely because of its brand name, despite there being cheaper alternatives. Why did you choose the more expensive brand, and how did the brand's reputation influence your decision?
- What makes something “too expensive”?

Supplemental Activity Ideas

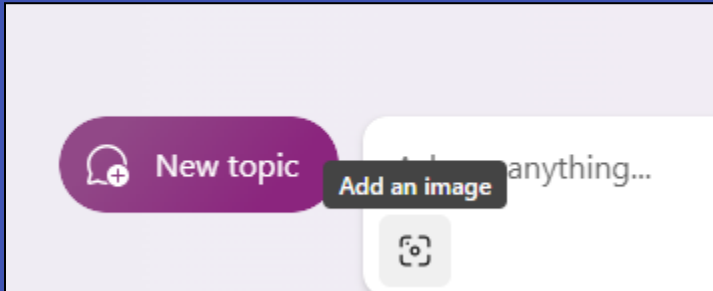
- **Market Survey Project:** Students conduct a survey on consumer preferences and perceptions about pricing. They can choose a product (or a range of products) and design a questionnaire to gather information on what factors consumers consider when they decide to purchase a product, such as brand, quality, price, and environmental impact. They could also ask how much people would be willing to pay for a specific product.
- **Create Your Own Product:** In this activity, students design a hypothetical product and determine its price. They need to consider factors like production costs, target audience, competition, marketing, and distribution expenses.
- **International Price Comparison Study:** Students select a common product available globally (like a specific smartphone model, a pair of branded sneakers, or a popular book) and research its price in various countries.

Sources to Learn More

- Generative AI options to try
 - Microsoft Bing Chat: www.bing.com/chat
 - ChatGPT: chat.openai.com
 - Anthropic Claude: claude.ai/
 - Google Bard: bard.google.com/chat
- How to price a product:
<https://www.nerdwallet.com/article/small-business/how-to-price-a-product>
- Different methods of determining how to set prices:
<https://www.uschamber.com/co/start/strategy/product-pricing-overview>

Example

Using Bing Chat with the image search feature – Click on the camera outline button under the text entry area. Paste an image URL or upload a picture from your computer.



Example interaction with Bing Chat

User: Describe this image. How much would you think this would cost?



Bing Chat: This delightful image showcases a LEGO BrickHeadz set of a French Bulldog. The set includes an adorable French Bulldog figure with a blue collar and a gold tag, sitting next to a buildable red fire hydrant. The figure stands on a black baseplate with a gray sidewalk. The packaging features a yellow box with the label “LEGO BrickHeadz Pets 40440 French Bulldog” and a total of 335 pieces. The French Bulldog figure is approximately 9 cm tall.

As for the cost, the current retail price for this set is \$14.99, but the average price on secondary markets is around \$16, which could indicate that the set is backordered or temporarily out of stock in various regions. It’s a charming addition for LEGO enthusiasts and animal lovers alike! 🐾 🧱

[note: This set is actually #40544, “French Bulldog and Puppy”]

User: On the WalMart website, this set retails for \$34.99 regularly, but is on sale for \$18.99. Help me understand the reason why this is the price. What costs go into this product?

Bing Chat: Certainly! Let's break down the costs that contribute to the pricing of the LEGO BrickHeadz French Bulldog set:

1. **Materials and Manufacturing:** The primary cost is associated with the raw materials used to create the LEGO pieces. High-quality plastic, precision molding, and consistent quality control are essential. Additionally, the manufacturing process involves machinery, labor, and energy costs.
2. **Design and Development:** LEGO invests in designing and developing each set. This includes creating the original concept, designing the pieces, and ensuring they fit together seamlessly. Skilled designers and engineers work on these aspects.
3. **Licensing and Branding:** The French Bulldog set is part of the BrickHeadz Pets series. Licensing fees may apply if LEGO collaborates with external brands (such as Disney, Marvel, or Star Wars). These fees allow LEGO to use specific characters or themes.
4. **Packaging and Marketing:** The yellow box with appealing graphics and clear labeling adds to the overall cost. Marketing efforts, including advertisements and promotional materials, also contribute.
5. **Distribution and Retail Markup:** LEGO sets are distributed globally, involving logistics, transportation, and storage costs. Retailers like Walmart add their own markup to cover expenses and make a profit. The sale price you see reflects Walmart's pricing strategy.
6. **Profit Margin:** LEGO aims for a reasonable profit margin on each set. The difference between the production cost and the retail price contributes to their revenue.

In the case of the sale price of \$18.99, Walmart likely offers a discount to attract customers, boost sales, and clear inventory. Seasonal promotions, excess stock, or special events can influence pricing decisions.

Remember, LEGO sets provide not only entertainment but also creativity, education, and collectibility. So, whether at regular price or on sale, they offer value to fans of all ages!



User:

1. "What are the typical manufacturing costs for a product like this?"
2. "How does marketing impact the price?"
3. "How does branding affect the price?"
4. "How much would the company be likely to make on each product sold?"

Bard: Certainly! Let's delve into the details:

1. **Manufacturing Costs:**
 - The manufacturing costs for a LEGO set like the **BrickHeadz #40544 French Bulldog and Puppy** involve several components:
 - **Materials:** The primary cost is the plastic used for the bricks. LEGO uses high-quality ABS plastic.
 - **Labor:** Labor costs include designing, molding, assembling, and quality control.
 - **Packaging:** Creating appealing packaging adds to the overall cost.

- **Distribution:** Shipping and logistics contribute.
- **Tooling and Machinery:** Investment in molds and machinery.
- **Overhead:** Factory maintenance, utilities, etc.

2. Marketing Impact:

- **Promotion:** Marketing expenses cover advertising, events, and campaigns.
- **Brand Awareness:** Effective marketing builds brand recognition and trust.
- **Perceived Value:** Marketing influences how consumers perceive the product's worth.

3. Branding Influence:

- **Premium Brands:** LEGO's strong brand reputation allows them to charge a premium.
- **Licensed Themes:** Sets based on popular franchises (e.g., Star Wars) may cost more due to licensing fees.
- **Exclusive Sets:** Limited editions or unique designs command higher prices.

4. Profit Margin:

- LEGO aims for a healthy profit margin. The difference between the sale price and total costs contributes to profit.
- Exact profit per set depends on various factors, including volume, economies of scale, and pricing strategy.

In summary, LEGO balances production costs, marketing efforts, and brand value to determine the price. While specifics vary, the company aims for profitability while delivering quality and creativity to fans like you!   