

## **WAMC Lab Template**

Math Concept(s): Modeling Supply and Demand

Source / Text: Cengage Financial Algebra 9-3

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### **Attach the following documents:**

- Lab Instructions
- Student Handout(s)
- Rubric and/or Assessment Tool

### **Short Description (Be sure to include where in your instruction this lab takes place):**

#### **Lab Plan**

Lab Title: Supply and Demand

Prerequisite skills: Students will need to be able to understand the basic concept of supply and demand in a financial context.

Lab objective: Students will construct and analyze supply and demand curves using a hands-on activity to model real-world scenarios.

#### **Standards: (Note SPECIFIC relationship to Science, Technology, and/or Engineering)**

Mathematics K–12 Learning Standards:

- HSF-LE.B.5: Interpret the parameters in a linear or exponential function in terms of a context.

Standards for Mathematical Practice:

- 1. Make sense of problems and persevere in solving them.
- 4. Model with mathematics.
- 6. Attend to precision.

K-12 Learning Standards-ELA (Reading, Writing, Speaking & Listening):

- Speaking and listening. Comprehension and Collaboration

Technology

- 3.a. Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

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## Leadership/21st Century Skills:

21st Century Interdisciplinary themes (Check those that apply to the above activity.)

- Global Awareness       Financial/Economic/Business/Entrepreneurial Literacy       Civic Literacy  
 Health/Safety Literacy       Environmental Literacy

21st Century Skills (Check those that students will demonstrate in the above activity.)

### LEARNING AND INNOVATION

#### Creativity and Innovation

- Think Creatively  
 **Work Creatively with Others**  
 Implement Innovations

#### Critical Thinking and Problem Solving

- Reason Effectively  
 Use Systems Thinking  
 Make Judgments and Decisions  
 **Solve Problems**

#### Communication and Collaboration

- Communicate Clearly  
 Collaborate with Others

### INFORMATION, MEDIA & TECHNOLOGY SKILLS

#### Information Literacy

- Access and Evaluate Information  
 Use and manage Information

#### Media Literacy

- Analyze Media  
 Create Media Products

#### Information, Communications and Technology (ICT Literacy)

- Apply Technology Effectively**

### LIFE & CAREER SKILLS

#### Flexibility and Adaptability

- Adapt to Change  
 Be Flexible

#### Initiative and Self-Direction

- Manage Goals and Time  
 Work Independently  
 Be Self-Directed Learners

#### Social and Cross-Cultural

- Interact Effectively with Others  
 Work Effectively in Diverse Teams

### Productivity and Accountability

- Manage Projects**  
 **Produce Results**

#### Leadership and Responsibility

- Guide and Lead Others  
 Be Responsible to Others

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## **Teacher Preparation: (What materials and set-up are required for this lab?)**

### Materials

- Index cards or sticky notes
- Markers or pens
- Large poster paper or whiteboard
- Tape
- Small objects (e.g., beans, coins, etc.)

### Set-Up Required:

- None.

### **Lab Organization Strategies:**

Leadership (Connect to 21<sup>st</sup> Century Skills selected):

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Cooperative Learning: Students will be divided into small groups to research a product or service and create a poster showing their supply and demand curves.

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Expectations: It is expected that students will gain understanding on how supply and demand affect costs.

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### Timeline:

- This is a 90 minute lab. Half of the lab time will be spent on the research portion.

### **Post Lab Follow-Up/Conclusions:**

Discuss real world application of learning from lab

- Career applications for this lab could be starting your own business, or a business analyst or operations manager.

### Career Applications

- Operations Manager

### Optional or Extension Activities

- Groups could research and present real-world examples where supply and demand curves have significant impacts on market outcomes. They can analyze and discuss the effects of factors such as government regulations, consumer trends, or technological advancements.
- Students can graph their supply and demand curves using Desmos and set the variables to change automatically to see the functions in action.

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## Procedure:

### 1. Introduction (5 minutes):

Begin by reviewing the concepts of supply and demand and their importance in financial decision-making.

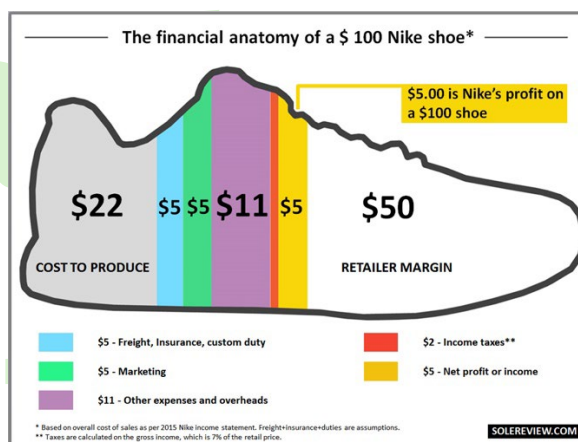
Explain that students will be engaging in a hands-on lab activity to model supply and demand curves for a specific product or service.

### 2. Scenario Selection (10 minutes):

Divide the class into small groups.

Assign each group the task of researching a product or service for which they will model the supply and demand.

Provide each group with index cards or sticky notes.



### 3. Factors Identification (10 minutes):

Instruct each group to brainstorm and write down factors that could affect the supply and demand for their assigned product or service.

Encourage students to think about factors such as price, consumer preferences, production costs, and external influences.

### 4. Curve Construction (20 minutes):

Give each group a large poster paper or access to a whiteboard.

Instruct them to draw two perpendicular axes, labeling the horizontal axis as "Quantity" and the vertical axis as "Price."

Have groups create supply and demand curves on the poster paper or whiteboard based on the factors they identified.

They should plot points along each curve to represent different price-quantity combinations.

### 5. Presentation and Analysis (15 minutes):

Once each group has completed their supply and demand curves, have them present their findings to the class.

Groups should explain the factors that influenced the shape and position of their curves.

Facilitate a discussion where students analyze and compare the different supply and demand curves, discussing similarities, differences, and the impact of various factors.

**6. Manipulating the Curves (15 minutes):**

Give each group a set of small objects (beans, coins, etc.) to represent the quantity of the product or service.

Instruct groups to place their objects along their supply and demand curves to represent different price-quantity scenarios.

Allow students to manipulate the objects on the curves, observing how changes in price and quantity affect the supply and demand relationship.

**7. Reflection and Application (10 minutes):**

Engage students in a class discussion where they reflect on the activity and its implications.

Ask students to apply their understanding of supply and demand curves to analyze a new scenario or make predictions about price and quantity based on changes in the factors.

**8. Conclusion (5 minutes):**

Summarize the key concepts covered during the lab activity, highlighting the importance of modeling supply and demand in financial decision-making.