Grade 11th - 12th, 1 Credit
Elective Course
Prerequisites: World History, American or AP U.S. History

High School AP Microeconomics Curriculum

Course Description: AP Microeconomics is a course that focuses on the principles of economics that apply to the functions of individual economic decision-makers, both consumers and producers, within the economic system. The course also develops students’ familiarity with the operation of product and factor markets, distributions of income, market failure, and the role of government in promoting greater efficiency and equity in the economy. Students evaluate the efficiency of the outcomes with respect to price, output, consumer surplus, and producer surplus. They will also examine the behaviors of households and businesses in factor markets, and learn how the determination of prices, wages, interest, and rent influence the distribution of income in a market economy. The course offers opportunities to consider instances in which private markets may fail to allocate resources efficiently and to examine various policy alternatives aimed at improving the efficiency of private markets. Students learn to use graphs, charts, and data to analyze, describe, and explain economic concepts.
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<td>Factor Markets</td>
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Unit 1: Basic Economic Concepts

Subject: AP Microeconomics
Grade: 11th-12th
Name of Unit: Basic Economic Concepts
Length of Unit: 3 Weeks

Overview of Unit: The purpose of Unit 1 is to lay out basic economic principles that will serve as building blocks for the rest of the class. The economic principles can be grouped into three categories: how people make decisions, how people interact, and how the economy works as a whole. Throughout the class, references will be made repeatedly to these principles.

Priority Standards for unit:

Students will understand that:

- Productive resources are limited. Therefore, people cannot have all the goods and services they want; as a result, they must choose some things and give up others (CEE-1).
- Different methods can be used to allocate goods and services. People acting individually or collectively must choose which methods to use to allocate different kinds of goods and services (CEE-3).
- Evaluate different methods of allocating goods and services, by comparing the benefits to the costs of each method (CEE-3).
- Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and among individuals or organizations in different nations (CEE-5).

Supporting Standards for unit:

- Evaluate different methods of allocating goods and services, by comparing the benefits to the costs of each method (CEE-3).
- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others (ISTE 2 - Communication and Collaboration).
  - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
  - Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
  - Contribute to project teams to produce original works or solve problems.
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  - Identify and define authentic problems and significant questions for investigation.
  - Plan and manage activities to develop a solution or complete a project.
  - Collect and analyze data to identify solutions and/or make informed decisions.
  - Use multiple processes and diverse perspectives to explore alternative solutions.
Essential Questions:
1. Why trade among people or nations can be good for everyone?
2. Why do economists apply the methods of science?
3. What is the difference in the meaning of absolute advantage and comparative advantage?

Enduring Understanding/Big Ideas:
1. The fundamental lessons about interactions among people are that trade can be mutually beneficial, that markets are usually a good way of coordinating trades among people, and that the government can potentially improve market outcomes if there is some sort of market failure or if the market outcome is inequitable.
2. Economists try to address their subject with a scientist’s objectivity. Like all scientists, they make appropriate assumptions and build simplified models in order to understand the world around them. Two simple economic models are the circular-flow diagram and the production possibilities frontier.
3. There are two ways to compare the ability of two people in producing a good. The person who can produce the good with a smaller quantity of inputs is said to have an absolute advantage in producing the good. The person who has the smaller opportunity cost of producing the good is said to have a comparative advantage. The gains from trade are based on comparative advantage, not absolute advantage.

Unit Vocabulary:

<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
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<tbody>
<tr>
<td>● Demand</td>
<td>● Absolute Advantage</td>
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<td>● Economics</td>
<td>● Circular Flow</td>
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<td>● Efficiency</td>
<td>● Comparative Advantage</td>
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<td>● Equity</td>
<td>● Marginal</td>
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<td>● Incentive</td>
<td>● Normative Statements</td>
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<td>● Supply</td>
<td>● Opportunity to Business Cost</td>
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<td>● Trade</td>
<td>● Positive Statements</td>
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<td></td>
<td>● Production Possibilities Frontier</td>
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<tr>
<td></td>
<td>● Rational</td>
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<td></td>
<td>● Scarcity</td>
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Resources for Vocabulary Development: Principles of Economics by Mankiw, 4e; Quizlet.com; Investopedia.com
Engaging Experience 1  

Title: Economic Systems  

Suggested Length of Time: 1 Day  

Standards Addressed  

**Priority:**  
- Different methods can be used to allocate goods and services. People acting individually or collectively must choose which methods to use to allocate different kinds of goods and services (CEE-3).  

**Supporting:**  
- Evaluate different methods of allocating goods and services, by comparing the benefits to the costs of each method (CEE-3).  

**Detailed Description/Instructions:** Using the economics systems handout, below, and knowledge gained through lecture, students will research and present different nations that meet the criteria for allocation and ownership of resources in different economic systems.  

- Private ownership occurs in Fascism and Capitalism.  
- Private ownership is very important when the question “when should we produce” is asked. Or “how much should we produce?”  
- Think of the fish in the sea. No private ownership and we harvesting not only too early, before they are properly matured, but harvesting too much and destroying the ability of the fish to reproduce.  
- Consider the elephants in Africa. Hunted nearly to extinction until tribes were paid to ensure they lived.
• Tragedy of the commons is the “classic” example. Too many cattle grazing on commonly owned property.

Bloom’s Levels: Analyze
Webb’s DOK: 3
Rubric: To be created
Topic 2: Choice

Engaging Experience 1
Title: So Many Things to Do So Little Time
Suggested Length of Time: 15-20 Minutes
Standards Addressed

Priority:
- Productive resources are limited. Therefore, people cannot have all the goods and services they want; as a result, they must choose some things and give up others (CEE-1)

Supporting:
- N/A

Detailed Description/Instructions: Give students a list of activities with corresponding time requirements: sleep, 8 hours; sleep, 6 hours; eat breakfast, 30 minutes; ride a bike, 1 hour; go hiking, 2 hours; study, 3 hours; study, 2 hours; go to class, 4 hours; go to class, 6 hours; watch TV, 2 hours; watch TV, 6 hours; take a nap, 1 hour; work, 8 hours; work, 4 hours; etc.
Make sure that there are many choices and that there are many pleasurable experiences—too much for a 24-hour period. Ask students which Principle of Economics this illustrates from Mankiw chapter one.
If they do not say 1, 2, 3, and 4, help them see that this exercise has trade-offs in the choices they make, that each choice has an opportunity cost, that deciding whether or not to sleep 4 more hours may depend on whether you have already slept for 6, and that choices may be influenced by the incentives the student faces. For example, a student who is about to be placed on academic probation has an incentive to study harder.

Bloom’s Levels: Apply
Webb’s DOK: 2
Rubric: To be created

Engaging Experience 2
Title: Scarce Chairs!!
Suggested Length of Time: 30-40 Minutes
Standards Addressed

Priority:
- Productive resources are limited. Therefore, people cannot have all the goods and services they want; as a result, they must choose some things and give up others (CEE-1)

Supporting:
- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others (ISTE 2 - Communication and Collaboration).
  - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
  - Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
○ Contribute to project teams to produce original works or solve problems.

**Detailed Description/Instructions:** Before your Econ students arrive for their first full class meeting, remove chairs until there are only half as many as you will have students.

Tell students that the custodian removed the chairs for repairs, or they were taken to another room for a presentation or something. Anyway, you don’t know when they’ll come back and it may be a couple of weeks. For now, we are stuck with this many chairs, and we have to figure out a way to resolve this problem! Tell the students it’s up to them to decide how our limited number of chairs will be allocated. Have them brainstorm solutions out loud while you write their suggestions on the board. Try to come up with 6-10 possible solutions, then have the students vote on the one they would like to see enacted. They can only vote once! Write the tallies next to each option on the board. If there is a tie for #1, have the whole class vote between the two or three options you’ve narrowed it down to until there is one clear winner.

The Economist’s Solution: Once the students have voted on their favorite solution, share with them the economist’s favorite solution. It is known as a **sealed-bid auction**. Give each student a slip of scrap paper and have him write two things: 1) His name, and 2) the maximum price he would be willing and able to pay each class period to have a chair to sit on.

Collect the results, and in front of the students, organize their bids from highest to lowest. If there is a tie on the margin, have the students whose bids were identical bid again, writing their highest price on the back of the same slip of paper, then re-rank. The students with the highest bids will get a chair! For example, I had 17 students, and only 8 chairs. The highest bid was $10, while three students were not willing to pay anything. Four kids were willing to pay $1, but there were only two chair left at that point. When they re-bid, one was willing to pay $2, one $1.75, $1.25 and $1.20. Therefore, the two remaining chairs went to the students willing to pay $2 and $1.75.

Finally, tell the winners that they can take a seat, and that everyone else must stand! At this point, of course, you can send the lowest bidders out to fetch the missing chairs and begin your debrief.

*Cite: Jason Welker, Economics in Plain English Blog, August 14, 2012.*

http://welkerswikinomics.com/blog/2012/08/14/my-first-economics-lesson-scarce-chairs/

**Bloom’s Levels:** Apply

**Webb’s DOK:** 4

**Rubric:** Class participation
Topic 3: Trade

Engaging Experience 1
Title: Trade Creates Wealth
Suggested Length of Time: 40-50 Minutes

Standards Addressed

Priority:
- Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and among individuals or organizations in different nations (CEE- 5).

Supporting:

Detailed Description/Instructions: This lesson involves students in a trading simulation designed to illustrate a complex marketplace in which goods and services are traded. Students use this experience to investigate the conditions that encourage or discourage trade among individuals. See Appendix A for details.

Bloom’s Levels: Evaluate
Webb’s DOK: 4
Rubric: See Appendix A for scoring guide

Engaging Experience 2
Title: Creating Comparative Advantage Examples
Suggested Length of Time: 15 Minutes

Standards Addressed

Priority:
- Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and among individuals or organizations in different nations (CEE- 5).

Supporting:
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  - Identify and define authentic problems and significant questions for investigation.
  - Plan and manage activities to develop a solution or complete a project.
  - Collect and analyze data to identify solutions and/or make informed decisions.
  - Use multiple processes and diverse perspectives to explore alternative solutions.

Detailed Description/Instructions: Creating Comparative Advantage Examples
Materials needed: 3-5 candy bars (or similar items to use as prizes)

Divide the class into groups of three or four to write a comparative advantage problem of their own. Tell them to make creative, humorous, yet plausible examples.

Give the students fifteen minutes to work on creating their examples at the end of class. Instruct them to bring a neatly written copy of their examples for the next class when each group will present its example to the rest of the class. Students should include tables and figures similar to those used in class. Let the students vote on which group has the best example and
award a small prize to the group’s members. Make the examples available to all of the students in the class to use as practice problems for the exam.

**Bloom’s Levels:** Understand

**Webb’s DOK:** 4

**Rubric:** To be created
Topic 4: Circular Flow

Engaging Experience 1
Title: The Circular Flow Simulation
Suggested Length of Time: 1 Day
Standards Addressed

Priority:
- Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and among individuals or organizations in different nations (CEE- 5).

Supporting:

Detailed Description/Instructions: This lesson simulates the circular flow of resources, goods and services in a nation with a closed economy and no government sector. See Appendix B for the activity.

Cite: Jason Welker, Economics in Plain English Blog, September 8, 2010
http://welkerswikinomics.com/blog/category/circular-flow-model/

Bloom’s Levels: Evaluate
Webb’s DOK: 4
Rubric: See Appendix B for debriefing questions

Engaging Experience 2
Title: Circular Flow Diagram
Suggested Length of Time: 30 Minutes
Standards Addressed

Priority:
- A market exists when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services (CEE- 7).

Supporting:
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  - Identify and define authentic problems and significant questions for investigation.
  - Plan and manage activities to develop a solution or complete a project.
  - Collect and analyze data to identify solutions and/or make informed decisions.

Detailed Description/Instructions: Draw a circular-flow diagram. Identify the parts of the model that correspond to the flow of goods and services and the flow of dollars for each of the following activities.
- Selena pays a storekeeper $1 for a quart of milk.
- Stuart earns $4.50 per hour working at a fast-food restaurant.
- Shanna spends $7 to see a movie.
- Sally earns $10,000 from his 10 percent ownership of Acme Industrial.

Teachers may consider incorporating OneNote, organizational charts and PowerPoints as appropriate with this activity.

Bloom’s Levels: Create; Webb’s DOK: 3; Rubric: To be created
**Engaging Experience 1**

**Title:** Normative vs. Positive Statements

**Suggested Length of Time:** 10-15 Minutes

**Standards Addressed**

*Priority:*
- Evaluate different methods of allocating goods and services, by comparing the benefits to the costs of each method (CEE- 3).

*Supporting:*
- N/A

**Detailed Description/Instructions:** Classify each of the following statements as positive or normative. Explain.
- Society faces a short-run trade-off between inflation and unemployment.
- A reduction in the rate of growth of money will reduce the rate of inflation.
- The Federal Reserve should reduce the rate of growth of money.
- Society ought to require welfare recipients to look for jobs.
- Lower tax rates encourage more work and more saving.

**Bloom’s Levels:** Evaluate

**Webb’s DOK:** 3

**Rubric:** To be created
Engaging Scenario

**Engaging Scenario** (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

Released AP Microeconomic Free Response Questions and released Multiple Choice questions

**Rubric for Engaging Scenario:** College Board AP Rubric
<table>
<thead>
<tr>
<th>Topic</th>
<th>Engaging Experience Title</th>
<th>Description</th>
<th>Suggested Length of Time</th>
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</table>
| 1     | Economic Systems           | Using the economics systems handout, below, and knowledge gained through lecture, students will research and present different nations that meet the criteria for allocation and ownership of resources in different economic systems.  
- Private ownership occurs in Fascism and Capitalism.  
- Private ownership is very important when the question “when should we produce” is asked. Or “how much should we produce?”  
- Think of the fish in the sea. No private ownership and we harvesting not only too early, before they are properly matured, but harvesting too much and destroying the ability of the fish to reproduce.  
- Consider the elephants in Africa. Hunted nearly to extinction until tribes were paid to ensure they lived.  
- Tragedy of the commons is the “classic” example. Too many cattle grazing on commonly owned property. | 1 Day |
| 2     | So Many Things To Do So Little Time | Give students a list of activities with corresponding time requirements: sleep, 8 hours; sleep, 6 hours; eat breakfast, 30 minutes; ride a bike, 1 hour; go hiking, 2 hours; study, 3 hours; study, 2 hours; go to class, 4 hours; go to class, 6 hours; watch TV, 2 hours; watch TV, 6 hours; take a nap, 1 hour; work, 8 hours; work, 4 hours; etc.  
Make sure that there are many choices and that there are many pleasurable experiences—too much for a 24-hour period. Ask students which Principle of Economics this illustrates from Mankiw chapter one.  
If they do not say 1, 2, 3, and 4, help them see that this exercise has trade-offs in the choices they make, that each choice has an opportunity cost, that deciding whether or not to sleep 4 more hours may depend on whether you have already... | 15-20 Minutes |
slept for 6, and that choices may be influenced by the incentives the student faces. For example, a student who is about to be placed on academic probation has an incentive to study harder.


|   | Scarc Chairs!! | Before your Econ students arrive for their first full class meeting, remove chairs until there are only half as many as you will have students. Tell students that the custodian removed the chairs for repairs, or they were taken to another room for a presentation or something. Anyway, you don’t know when they’ll come back and it may be a couple of weeks. For now, we are stuck with this many chairs, and we have to figure out a way to resolve this problem! Tell the students it’s up to them to decide how our limited number of chairs will be allocated. Have them brainstorm solutions out loud while you write their suggestions on the board. Try to come up with 6-10 possible solutions, then have the students vote on the one they would like to see enacted. They can only vote once! Write the tallies next to each option on the board. If there is a tie for #1, have the whole class vote between the two or three options you’ve narrowed it down to until there is one clear winner.

   The Economist’s Solution: Once the students have voted on their favorite solution, share with them the economist’s favorite solution. It is known as a sealed-bid auction. Give each student a slip of scrap paper and have him write two things: 1) His name, and 2) the maximum price he would be willing and able to pay each class period to have a chair to sit on. Collect the results, and in front of the students, organize their bids from highest to lowest. If there is a tie on the margin, have the students whose bids were identical bid again, writing their highest price on the back of the same slip of paper, then re-rank. The students with the highest bids will get a chair! For example, I had 17 students, and only 8 chairs. The highest bid was $10, while three students were not willing to pay anything. Four kids were willing to pay $1, but | 30-40 Minutes |
there were only two chair left at that point. When they re-bid, one was willing to pay $2, one $1.75, $1.25 and $1.20. Therefore, the two remaining chairs went to the students willing to pay $2 and $1.75.

Finally, tell the winners that they can take a seat, and that everyone else must stand! At this point, of course, you can send the lowest bidders out to fetch the missing chairs and begin your debrief.

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<th>3</th>
<th>Trade Creates Wealth</th>
<th>This lesson involves students in a trading simulation designed to illustrate a complex marketplace in which goods and services are traded. Students use this experience to investigate the conditions that encourage or discourage trade among individuals. See Appendix A for details.</th>
<th>40-50 Minutes</th>
</tr>
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</table>
| 3 | Creating Comparative Advantage Examples | Creating Comparative Advantage Examples  
Materials needed: 3-5 candy bars (or similar items to use as prizes)  
Divide the class into groups of three or four to write a comparative advantage problem of their own. Tell them to make creative, humorous, yet plausible examples.  
Give the students fifteen minutes to work on creating their examples at the end of class. Instruct them to bring a neatly written copy of their examples for the next class when each group will present its example to the rest of the class. Students should include tables and figures similar to those used in class. Let the students vote on which group has the best example and award a small prize to the group’s members. Make the examples available to all of the students in the class to use as practice problems for the exam. | 15 Minutes |
<p>| 4 | The Circular Flow Simulation | This lesson simulates the circular flow of resources, goods and services in a nation with a closed economy and no government sector. See Appendix B for the activity. | 1 Day |</p>
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</table>
| **4** | Circular Flow Diagram | Draw a circular-flow diagram. Identify the parts of the model that correspond to the flow of goods and services and the flow of dollars for each of the following activities.  
- Selena pays a storekeeper $1 for a quart of milk.  
- Stuart earns $4.50 per hour working at a fast-food restaurant.  
- Shanna spends $7 to see a movie.  
- Sally earns $10,000 from his 10 percent ownership of Acme Industrial.  
Teachers may consider incorporating one note, organizational charts and PowerPoints as appropriate with this activity. |
|   |   | 30 Minutes |
| **5** | Normative vs. Positive Statements | Classify each of the following statements as positive or normative. Explain.  
- Society faces a short-run trade-off between inflation and unemployment.  
- A reduction in the rate of growth of money will reduce the rate of inflation.  
- The Federal Reserve should reduce the rate of growth of money.  
- Society ought to require welfare recipients to look for jobs.  
- Lower tax rates encourage more work and more saving. |
|   |   | 10-15 Minutes |
| **6** | In the Chips Supply and Demand Simulation | This lesson simulates a market for computer chips. Students, acting as buyers and sellers, will experience the competitive nature of markets. As a result, they will see how competition influences the price of goods and the decisions of buyers and sellers. See Appendix C for details of this activity. |
|   |   | 1 Day |
| **6** | Shifts in Supply and Demand Article Review | Find an article in a recent newspaper or magazine illustrating a change in price or quantity in some market. Analyze the situation using economic reasoning.  
1. Has there been an increase or decrease in demand? Factors that could shift the | 1 - 2 Days, w/ homework |
demand curve include changes in preferences, changes in income, changes in the price of substitutes or complements, or changes in the number of consumers in the market.

2. Has there been an increase or decrease in supply? Factors that could shift the supply curve include changes in costs of materials, wages, or other inputs; changes in technology; or changes in the number of firms in the market.

3. Draw a supply-and-demand graph to explain this change. Be sure to label your graph and clearly indicate which curve shifts.

Ask students to turn in a copy of the article along with their explanation. Warn students to avoid advertisements because they contain little information. They should be wary of commodity and financial markets unless they have a good understanding of the particular market. Markets for ordinary goods and services are most easily analyzed.

Points for Discussion

- Most changes will only shift one curve—either supply or demand—not both.
- Remind students that price changes will not cause either curve to shift. (But shifting either curve will change price.)
- Equilibrium points are not fixed. They change when supply or demand changes.
- Prices will not necessarily return to previous levels nor will quantities.
- Remind the students of the four graphs showing the shifts in supply and demand.
Unit 2: Nature and Functions of Product Markets

Subject: AP Microeconomics
Grade: 11th-12th
Name of Unit: Nature and Functions of Product Markets
Length of Unit: 3 Weeks

Overview of Unit: Unit 2 is a three-chapter sequence that deals with supply and demand and how markets work. The unit shows how supply and demand for a good determines both the quantity produced and the price at which the good sells. The material will add precision to the discussion of supply and demand by addressing the concept of elasticity—the sensitivity of the quantity supplied and quantity demanded to changes in economic variables. Finally, students will address the impact of government policies on prices and quantities in markets.

Priority Standards for unit:

- People usually respond predictably to positive and negative incentives. CEE-4
- A market exists when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services. CEE-7a
- Identify markets in which they have participated as a buyer and as a seller and describe how the interaction of all buyers and sellers influences prices. Also, predict how prices change when there is either a shortage or surplus of the product available. CEE-7b
- Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives (CEE-8).

Supporting Standards for unit:

- Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - Plan strategies to guide inquiry.
  - Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
  - Process data and report results.
**Essential Questions:**
1. How is supply and demand together set the price of a good and the quantity sold?
2. What determines the demand and supply for a good in a competitive market?
3. What determines the elasticity of demand and supply?
4. What are the effects of government policies that place a ceiling and floor on prices?
5. Why is the burden of a tax split between buyers and sellers?

**Enduring Understanding/Big Ideas:**
1. The intersection of the supply and demand curves determines the market equilibrium. At the equilibrium price, the quantity demanded equals the quantity supplied. The behavior of buyers and sellers naturally drives markets toward their equilibrium. When the market price is above the equilibrium price, there is a surplus of the good, which causes the market price to fall. When the market price is below the equilibrium price, there is a shortage, which causes the market price to rise.
2. In market economies, prices are the signals that guide economic decisions and thereby allocate scarce resources. For every good in the economy, the price ensures that supply and demand are in balance. The equilibrium price then determines how much of the good buyers choose to purchase and how much sellers choose to produce.
3. The price elasticity of demand is calculated as the percentage change in quantity demanded divided by the percentage change in price. If the elasticity is less than one, so that quantity demanded moves proportionately less than the price, demand is said to be inelastic. If the elasticity is greater than one, so that quantity demanded moves proportionately more than the price, demand is said to be elastic. The price elasticity of supply is calculated as the percentage change in quantity supplied divided by the percentage change in price. If the elasticity is less than one, so that quantity supplied moves proportionately less than the price, supply is said to be inelastic. If the elasticity is greater than one, so that quantity supplied moves proportionately more than the price, supply is said to be elastic.
4. A price ceiling is a legal maximum on the price of a good or service. An example is rent control. If the price ceiling is below the equilibrium price, the quantity demanded exceeds the quantity supplied. Because of the resulting shortage, sellers must in some way ration the good or service among buyers. A price floor is a legal minimum on the price of a good or service. An example is the minimum wage. If the price floor is above the equilibrium price, the quantity supplied exceeds the quantity demanded. Because of the resulting surplus, buyers’ demands for the good or service must be rationed in some way among sellers.
5. A tax on a good places a wedge between the price paid by buyers and the price received by sellers. When the market moves to the new equilibrium, buyers pay more for the good and sellers receive less for it. In this sense, buyers and sellers share the tax burden. The incidence of a tax (that is, the division of the tax burden) does not depend on whether the tax is levied on buyers or sellers.
**Unit Vocabulary:**

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<td>● Demand</td>
<td>● Consumer Surplus</td>
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<tr>
<td>● Labor</td>
<td>● Deadweight Loss</td>
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<td>● Supply</td>
<td>● Elasticity</td>
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<td>● Wage</td>
<td>● Laffer Curve</td>
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<td></td>
<td>● Price Ceilings</td>
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<td></td>
<td>● Price Floors</td>
</tr>
<tr>
<td></td>
<td>● Producer Surplus</td>
</tr>
</tbody>
</table>

**Resources for Vocabulary Development:** Principles of Economics by Mankiw, 4e; Quizlet.com; Investopedia.com
Topic 1: Supply and Demand

Engaging Experience 1
Title: In the Chips: Supply and Demand Simulation
Suggested Length of Time: 1 Day
Standards Addressed

Priority:
- A market exists when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services. CEE-7a

Supporting:
Detailed Description/Instructions: This lesson simulates a market for computer chips. Students, acting as buyers and sellers, will experience the competitive nature of markets. As a result, they will see how competition influences the price of goods and the decisions of buyers and sellers. See Appendix C for activity details.
Bloom’s Levels: Evaluate
Webb’s DOK: 4
Rubric: See Appendix C for scoring guide

Engaging Experience 2
Title: Shifts in Supply and Demand Article Review
Suggested Length of Time: 1 - 2 Days, w/ homework
Standards Addressed

Priority:
- Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives (CEE- 8).

Supporting:
- Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - Plan strategies to guide inquiry.
  - Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
  - Process data and report results.

Detailed Description/Instructions: Find an article in a recent newspaper or magazine illustrating a change in price or quantity in some market. Analyze the situation using economic reasoning.

1. Has there been an increase or decrease in demand? Factors that could shift the demand curve include changes in preferences, changes in income, changes in the price of substitutes or complements, or changes in the number of consumers in the market.
2. Has there been an increase or decrease in supply? Factors that could shift the supply curve include changes in costs of materials, wages, or other inputs; changes in technology; or changes in the number of firms in the market.
3. Draw a supply-and-demand graph to explain this change. Be sure to label your graph and clearly indicate which curve shifts.
Ask students to turn in a copy of the article along with their explanation. Warn students to avoid advertisements because they contain little information. They should be wary of commodity and financial markets unless they have a good understanding of the particular market. Markets for ordinary goods and services are most easily analyzed.

**Discussion Points:**
- Most changes will only shift one curve—either supply or demand—not both. Remind students that price changes will not cause either curve to shift. (But shifting either curve will change price.)
- Equilibrium points are not fixed. They change when supply or demand changes. Prices will not necessarily return to previous levels nor will quantities.
- Remind the students of the four graphs showing the shifts in supply and demand.

**Bloom’s Levels:** Analyze
**Webb’s DOK:** 4
**Rubric:** To be created

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**Engaging Experience 3**
**Title:** Understanding Price Elasticity of Demand
**Suggested Length of Time:** 35-45 Minutes

**Standards Addressed**

**Priority:**
- Identify markets in which they have participated as a buyer and as a seller and describe how the interaction of all buyers and sellers influences prices. Also, predict how prices change when there is either a shortage or surplus of the product available. CEE-7b

**Supporting:**
- Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - Plan strategies to guide inquiry.
  - Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
  - Process data and report results.

**Detailed Description/Instructions:** Economics offers us a unique set of tools for understanding the behavior of consumers in various markets. Elasticity is one of those tools, one which helps us understand how consumers will respond to the change in price of some goods more or less than others. Some of the questions about consumer behavior elasticity helps answer are:
- Why do governments place such huge taxes on cigarettes?
- Why did Apple cut the price of the new iPhone in half from the original one, despite the fact that it had so many new features?
- Why do movie theaters seem to raise their prices so steadily over the years, rather than doubling the price of tickets each year?

These and other questions can be answered by knowing something about the relative price elasticities of demand for the goods in question. **Price elasticity of demand refers to the sensitivity of consumers to a change in price.** For some goods, even the slightest increase in
price will scare consumers away, while for others, price can go up and up and up and the quantity demanded won’t budge!

Here’s just one illustration of a good for which consumers are extremely sensitive to changes in price: Every autumn, around the city of Shanghai thousands of small farms harvest the Chinese watermelon, a small, green, juicy melon that looks and tastes the same regardless of which farm it came from. The farmers sell their melons to one of the hundreds of melon vendors who drive their big blue trucks into the city of Shanghai during about two weeks in October to sell the watermelons to the city folk who love their refreshing taste.

During the two weeks of the melon harvest, there are hundreds of blue trucks parked two or three per block all over the city. The hundreds of melon vendors sell an identical product, acquired at identical costs from thousands of farms using identical techniques for farming. In other words, the melon market in Shanghai during these two weeks is close to being perfectly competitive.

The price of melons is established through competition at something very close to the exact cost to the vendor of getting the melons into the city. Consumers know this, and therefore if one vendor tries to sell his melons for more than the equilibrium price, consumers will respond by buying NONE of that vendors melons. Conversely, if a vendor were to lower his price at all, rationally EVERY consumer would want to buy from that vendor, but since the price is already at the cost to the vendor, no vendor is able to lower the price without losing money. The outcome in the market for melons in Shanghai is that demand for melons is close to being perfectly elastic, meaning that consumers are completely sensitive to changes in price of watermelons.

Not all goods are like watermelons. In fact, for some goods demand is close to perfectly inelastic. Study the graph below, showing the relative elasticities of five different products, then answer the questions below in your comment!

Discussion Questions:
1. For which product is demand perfectly inelastic? Perfectly elastic? Unit elastic?
2. What relationship exists between relative slopes of demand curves and elasticity?
3. What are two characteristics of cigarettes that make demand for them inelastic?
4. What are two characteristics of heart transplants that make demand perfectly inelastic?
5. What are the characteristics of a good for which demand is perfectly elastic?

Cite: Jason Welker, Economics in Plain English Blog, October 5th, 2010
http://welkerswikinomics.com/blog/2010/10/05/from-heart-transplants-to-watermelons-understanding-price-elasticity-of-demand/

Bloom’s Levels: Evaluate
Webb’s DOK: 3
Rubric: Check for understanding
Engaging Experience 1
Title: Ducks in a Row
Suggested Length of Time: 45 Minutes
Standards Addressed

Priority:
- People usually respond predictably to positive and negative incentives. CEE-4
Supporting:
- N/A

Detailed Description/Instructions: This demonstration illustrates some common problems of government intervention in markets. Price ceilings, subsidies, and unintended consequences.

One volunteer plays the role of the government in a poor country. Give the play money to the “government,” except for $1. The government uses this money to buy ducks from the farmer and provides the ducks to the shopkeeper. The second volunteer is an urban shopkeeper. The shopkeeper asks the government for more ducks whenever he or she is sold out. Give the shopkeeper one duck. The third volunteer is a consumer. The consumer buys ducks. Give the consumer $1 in play money. The instructor is a duck farmer. The farmer keeps the second duck.

Explain this background: “Ducks are a staple food in this country but they are expensive at $3 each. The government wants to make food cheap for the urban poor to alleviate hunger. They calculate people could afford ducks if they were priced at $1. The government decides to impose a price ceiling of $1; $1 is now the maximum retail price for ducks.”

Start the game. The consumer buys one duck from the shopkeeper. The shopkeeper requests more ducks from the government. The government comes to the farmer.

Points for Discussion (The instructor, as the duck farmer, controls the game. There are three points to make in this demonstration):
1. Shortage. The farmer refuses to sell ducks at $1 each. The shopkeeper has no ducks.
2. Subsidy. The farmer offers to sell the ducks for $3. The ducks can then be sold in the marketplace for $1. The government pays a $2 subsidy to keep food prices low.
3. Black markets. After the farmer sells the duck to the government for $3, the duck goes to the shopkeeper for $1. The farmer buys back the original duck for $1 and resells it to the government for $3. This can continue until the government runs out of money.

Government intervention in markets can have unintended consequences. The price ceiling initially decreased the amount of food available in the cities. Subsidies to producers can increase production, but subsidies create new incentives.

Bloom’s Levels: Analyze
Webb’s DOK: 3
Rubric: Check for understanding

Engaging Experience 2
Title: Deadweight loss video extension
Suggested Length of Time: 30 Minutes
Standards Addressed

Priority:
- A market exists when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services. CEE-7a
Supporting:

- Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - Plan strategies to guide inquiry.
  - Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
  - Process data and report results.

Detailed Description/Instructions: Watch the video on Deadweight Loss, author a short summary and a graphical depiction of DWL. [https://www.youtube.com/watch?v=kF1c8ujpTYY](https://www.youtube.com/watch?v=kF1c8ujpTYY)

Bloom’s Levels: Analyze

Webb’s DOK: 3

Rubric: To be created
Topic 3: Laffer Curve

Engaging Experience 1
Title: Laffer curve worksheet questions
Suggested Length of Time: 30 Minutes
Standards Addressed

Priority:
- People usually respond predictably to positive and negative incentives. CEE-4

Supporting:

Detailed Description/Instructions: Have students work independently on the below questions from the reading of pages 170-172 from the Mankiw Economics book. The class can have a discussion to follow over the below questions.
- Draw and correctly label the Laffer Curve.
- Why is the Laffer Curve shaped the way it is?
- What is the Laffer Curve, and how does it relate to supply-side economics?
- Why is determining the economy’s position on the Laffer Curve so important for assessing tax policy?
- Why might one person work more, earn more, and pay more income tax when his or her tax rate is cut, while another person will work for less, earn less, and pay less income tax under the same circumstance?

Bloom’s Levels: Apply
Webb’s DOK: 3
Rubric: Check for understanding
Engaging Scenario (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

AP Microeconomic released Free Response Questions and Multiple Choice Questions

Rubric for Engaging Scenario: College Board AP Rubric
## Summary of Engaging Learning Experiences for Topics

<table>
<thead>
<tr>
<th>Topic</th>
<th>Engaging Experience Title</th>
<th>Description</th>
<th>Suggested Length of Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In the Chips supply and demand simulation</td>
<td>This lesson simulates a market for computer chips. Students, acting as buyers and sellers, will experience the competitive nature of markets. As a result, they will see how competition influences the price of goods and the decisions of buyers and sellers. <em>See Appendix C for activity details.</em></td>
<td>1 Day</td>
</tr>
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<td>Shifts in Supply and Demand Article Review</td>
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<td>1 - 2 Days</td>
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| 1     | Understanding Price Elasticity of Demand | Economics offers us a unique set of tools for understanding the behavior of consumers in various markets. Elasticity is one of those tools, one which helps us understand how consumers will respond to the change in price of some goods more or less than others. Some of the questions about consumer behavior elasticity helps answer are:  
  ● Why do governments place such huge taxes on cigarettes?  
  ● Why did Apple cut the price of the new iPhone in half from the original one, despite the fact that it had so many new features?  
  ● Why do movie theaters seem to raise their prices so steadily over the years, rather than doubling the price of tickets each year?  
  
  *Cite: Jason Welker, Economics in Plain English Blog, October 5th, 2010* | 35-45 Minutes |
<p>| 2     | Ducks in a Row | This demonstration illustrates some common problems of government intervention in markets. | 45 Minutes |</p>
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<th></th>
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</tr>
</thead>
<tbody>
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<td>Deadweight loss video extension</td>
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</table>
| 3 | Laffer curve worksheet questions | Have students work independently on the below questions from the reading of pages 170-172 from the Mankiw Economics book. The class can have a discussion to follow over the below questions.  
- Draw and correctly label the Laffer Curve.  
- Why is the Laffer Curve shaped the way it is?  
- What is the Laffer Curve, and how does it relate to supply-side economics?  
- Why is determining the economy’s position on the Laffer Curve so important for assessing tax policy?  
- Why might one person work more, earn more, and pay more income tax when his or her tax rate is cut, while another person will work for less, earn less, and pay less income tax under the same circumstance?  
Unit 3: Theory of the Firm Part A

Subject: AP Microeconomics
Grade: 11th-12th
Name of Unit: Theory of the Firm
Length of Unit: 2 Weeks

Overview of Unit: Unit 3 is part of a 5 chapter sequence dealing with firm behavior and the organization of industry. It is important that students become comfortable with the material in Unit 3 because Unit 4 is based on the concepts developed in Unit 3. To be more specific, Unit 3 develops the cost curves on which firm behavior is based. The remaining chapters in this section (Chapters 14-17) utilize these cost curves to develop the behavior of firms in a variety of different market structures—competitive, monopolistic, oligopolistic, and monopolistically competitive. The purpose of Unit 3 is to address the costs of production and develop the firm’s cost curves. These cost curves underlie the firm’s supply curve. In previous chapters, we summarized the firm’s production decisions by starting with the supply curve. While this is suitable for answering many questions, it is now necessary to address the costs that underlie the supply curve in order to address the part of economics known as industrial organization—the study of how firms’ decisions about prices and quantities depend on the market conditions they face.

Priority Standards for unit:
- Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Many choices involve doing a little more or a little less of something: few choices are “all or nothing” decisions. CEE-2
- Entrepreneurs take on the calculated risk of starting new businesses, either by embarking on new ventures similar to existing ones or by introducing new innovations. Entrepreneurial innovation is an important source of economic growth. CEE-14

Supporting Standards for unit:
- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others (ISTE 2 - Communication and Collaboration).
  - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
  - Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
**Essential Questions:**
1. What items are included in a firm’s costs of production?
2. What characteristics make a market competitive?
3. When do competitive firms decide whether to exit or enter a market?
4. How does a monopoly determine the quantity to produce and the price to charge?
5. How does prisoners’ dilemma apply to oligopolies?
6. How do the outcomes under monopolistic competition and under perfect competition compare?

**Enduring Understanding/Big Ideas:**
1. When analyzing a firm’s behavior, it is important to include all the opportunity costs of production. Some of the opportunity costs, such as the wages a firm pays its workers, are explicit. Other opportunity costs, such as the wages the firm owner gives up by working in the firm rather than taking another job, are implicit. When analyzing firm behavior, it is often useful to graph average total cost and marginal cost. For a typical firm, marginal cost rises with the quantity of output. Average total cost first falls as output increases and then rises as output increases further. The marginal-cost curve always crosses the average-total-cost curve at the minimum of average total cost.
2. Because a competitive firm is a price taker, its revenue is proportional to the amount of output it produces. The price of the good equals both the firm’s average revenue and its marginal revenue. To maximize profit, a firm chooses a quantity of output such that marginal revenue equals marginal cost. Because marginal revenue for a competitive firm equals the market price, the firm chooses quantity so that price equals marginal cost. Thus, the firm’s marginal cost curve is its supply curve.
3. In the short run when a firm cannot recover its fixed costs, the firm will choose to shut down temporarily if the price of the good is less than average variable cost. In the long run, when the firm can recover both fixed and variable costs, it will choose to exit if the price is less than average total cost. In a market with free entry and exit, profits are driven to zero in the long run. In this long-run equilibrium, all firms produce at the efficient scale, price equals minimum average total cost, and the number of firms adjusts to satisfy the quantity demanded at this price.
4. Because a monopoly is the sole producer in its market, it faces a downward-sloping demand curve for its product. When a monopoly increases production by one unit, it causes the price of its good to fall, which reduces the amount of revenue earned on all units produced. As a result, a monopoly’s marginal revenue is always below the price of its good. Like a competitive firm, a monopoly firm maximizes profit by producing the quantity at which marginal revenue equals marginal cost. The monopoly then chooses the price at which that quantity is demanded. Unlike a competitive firm, a monopoly firm’s price exceeds its marginal revenue, so its price exceeds marginal cost.
5. The prisoners’ dilemma shows that self-interest can prevent people from maintaining cooperation, even when cooperation is in their mutual interest. The logic of the prisoners’ dilemma applies in many situations including arms races, advertising, common-resource problems, and oligopolies.
6. The equilibrium in a monopolistically competitive market differs from that in a perfectly competitive market in two related ways. First, each firm has excess capacity. That is, it operates on the downward-sloping portion of the average-total-cost curve. Second, each firm charges a price above marginal cost. Monopolistic competition does not have all of
the desirable properties of perfect competition. There is the standard deadweight loss of monopoly caused by the markup of price over marginal cost. In addition, the number of firms (and thus the variety of products) can be too large or too small. In practice, the ability of policymakers to correct these inefficiencies is limited.
## Unit Vocabulary:

<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Explicit Vs. Implicit Costs</td>
<td>● Accounting Profit</td>
</tr>
<tr>
<td>● Profit</td>
<td>● Average Fixed Cost</td>
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<tr>
<td></td>
<td>● Average Total Cost</td>
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<td></td>
<td>● Average Variable Cost</td>
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<td></td>
<td>● Economic Profit</td>
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<td></td>
<td>● Economies Of Scale</td>
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<td></td>
<td>● Fixed Costs</td>
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<td></td>
<td>● Marginal Cost</td>
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<td></td>
<td>● Marginal Product</td>
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<td></td>
<td>● Total Cost</td>
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<td></td>
<td>● Total Revenue</td>
</tr>
<tr>
<td></td>
<td>● Variable Costs</td>
</tr>
</tbody>
</table>

**Resources for Vocabulary Development:** Principles of Economics by Mankiw, 4e; Quizlet.com; Investopedia.com
Engaging Experience 1
Title: Growing Rice on a Chalkboard
Suggested Length of Time: 20 Minutes
Standards Addressed

Priority:
- Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Many choices involve doing a little more or a little less of something: few choices are “all or nothing” decisions. CEE-2

Supporting:
- N/A

Detailed Description/Instructions: Students often have difficulty understanding why diminishing returns exist in short-run production. This activity demonstrates how fixed factors constrain the returns to variable inputs. Then the cause of increasing marginal cost is obvious.

Each “loan” is a sheet of paper with a large dollar sign ($) written on one side and the word “LOAN” on the other. Prepare the game by selecting two volunteers and outlining two rectangular areas on the chalkboard, approximately 2’3 feet. Next to each area, label a column “Labor” and another “Total Output.” Give each volunteer one piece of chalk and hide any other pieces. The chalk is a fixed factor of production.

The volunteers are farmers and the outlined areas are their farm fields. They produce rice by writing the word “RICE” in large letters inside their own field. The letters need to be at least three inches high. They want to produce as much rice as possible in each 15-second time period.

Of course, it takes big bucks to farm (show the class the large $) and the money comes in the form of a loan (show them the other side of the paper). Tell the volunteers, “Before you can start producing, you will need to run to the back of the classroom and get a loan from me.”

The variable input in this example is labor. The game is played repeatedly, adding another student each period. Eventually five students will be crowded around each “field” trying to write with a tiny piece of chalk.

The constraints from the fixed factors are physically demonstrated. Start the game with zeros in both the labor and total output columns; with no labor, no rice is produced. Then have the two volunteers race to see how much they can produce in 15 seconds. Record their production under “Total Output” with one “Labor.”


Bloom’s Levels: Apply
Webb’s DOK: 3
Rubric: Class Participation

Engaging Experience 2
Title: Average and Marginal Grades
Suggested Length of Time: 5-10 Minutes
Standards Addressed

Priority:
- Entrepreneurs take on the calculated risk of starting new businesses, either by embarking on new ventures similar to existing ones or by introducing new
innovations. Entrepreneurial innovation is an important source of economic growth. CEE-14

Supporting:
- N/A

Detailed Description/Instructions: This quick exercise uses an analogy to illustrate to students that they already know the relation between marginal values and averages.

Tell the class that two twins are enrolled in Principles of Economics. They each had a “B” average (GPA = 3.0) before taking the class. Twin One gets a “C” in the course. What happens to her GPA? Twin Two gets an “A” in the class. What happens to her GPA?

Common Answers and Points for Discussion. The entire class will know that Twin One will have a lower GPA and Twin Two a higher GPA. A “marginal” grade lower than the average will pull down the average. A “marginal” grade higher than the average will increase the average. The same is true of marginal cost and average costs. If marginal cost is less than average cost, average cost will fall. If marginal cost is higher than average cost, average cost will rise.


Bloom’s Levels: Understand
Webb’s DOK: 2
Rubric: Class Participation

Engaging Experience 3

Title: Marginal Cost and Marginal Benefit
Suggested Length of Time: 30 Minutes

Standards Addressed

Priority:
- Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Many choices involve doing a little more or a little less of something: few choices are “all or nothing” decisions. CEE-2

Supporting:
- N/A

Detailed Description/Instructions: Apply knowledge learned about Marginal Benefit and Marginal Cost analysis. Students will demonstrate knowledge of maximizing profit through the below activity.

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
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<tr>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>26</td>
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<tr>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>7</td>
<td>33</td>
</tr>
</tbody>
</table>

Using the numbers above answer the following questions.
- If inputs cost $5 each and output can be sold for $2 each, how many inputs would you hire?
• If inputs cost $5 each and output can be sold for $3 each, how many inputs would you employ?
• If inputs cost $6 each and output can be sold for $2 each, how many inputs would you employ?
• If inputs cost $6 each and output can be sold for $3 each, how many inputs would you employ?
• If inputs cost $12 each and output can be sold for $4 each, how many inputs would you hire?
• If inputs cost $6 each and output can be sold for $5 each, how many inputs would you hire?
• What is the Marginal Output of the fifth unit of input?
• If inputs cost $9 each, what is the Marginal cost of the fourth input?

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Output</th>
<th>Total cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>$35</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>$45</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>$55</td>
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<tr>
<td>3</td>
<td>12</td>
<td>$65</td>
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<tr>
<td>4</td>
<td>16</td>
<td>$75</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
<td>$85</td>
</tr>
<tr>
<td>6</td>
<td>19</td>
<td>$95</td>
</tr>
</tbody>
</table>

8. $9  
7. 4 units of inputs  
6. 6 units  
5. 5 units  
4. 6 units  
3. 4 units  
2. 5 units  
1. 5 units of inputs

• What is the fixed cost for this firm?
• What is the Average Fixed Cost when three inputs of input are being used?
• What is the Average Variable Cost when 4 units of inputs are being used?
• What is the Marginal cost of the third unit of input?
• If output can be sold for $5 each where is profit maximized? How do you know?

**Bloom’s Levels:** Apply  
**Webb’s DOK:** 3  
**Rubric:** To be created
**Engaging Experience 1**

**Title:** Production and Costs Free Response Practice  
**Suggested Length of Time:** 35-40 Minutes  
**Standards Addressed**

*Priority:*
- Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Many choices involve doing a little more or a little less of something; few choices are “all or nothing” decisions. CEE-2

*Supporting:*
- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others (ISTE 2 - Communication and Collaboration).
  - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
  - Communicate information and ideas effectively to multiple audiences using a variety of media and formats.

**Detailed Description/Instructions:** Using knowledge of cost curve equations, students are to complete the hypothetical business cost curve table and graph the cost curves using the data from the table. See Appendix D for additional details.

**Bloom’s Levels:** Analyze  
**Webb’s DOK:** 3  
**Rubric:** See Appendix D
Engaging Scenario

Engaging Scenario (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

AP Microeconomic released Free Response Questions and Multiple Choice Questions

Rubric for Engaging Scenario: College Board rubric
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</tr>
<tr>
<td>1</td>
<td>Marginal Cost and Marginal Benefit</td>
<td>Apply knowledge learned about Marginal Benefit and Marginal Cost analysis. Students will demonstrate knowledge of maximizing profit through the below activity.</td>
<td>30 Minutes</td>
</tr>
<tr>
<td>2</td>
<td>Production and Costs Free Response Practice</td>
<td>Using knowledge of cost curve equations, students are to complete the hypothetical business cost curve table and graph the cost curves using the data from the table. <em>See Appendix D</em></td>
<td>35-40 Minutes</td>
</tr>
</tbody>
</table>
Unit 4: Theory of the Firm Part B

Subject: AP Microeconomics
Grade: 11th-12th
Name of Unit: Theory of the Firm
Length of Unit: 3 Weeks

Overview of Unit: Unit 4 is the second Unit in a five-chapter sequence dealing with firm behavior and the organization of industry. Unit 3 developed the cost curves on which firm behavior is based. These cost curves are employed in Unit 4 to show how a competitive firm responds to changes in market conditions. Unit 4 will employ these cost curves to see how firms with market power (monopolistic, oligopolistic, and monopolistically competitive firms) respond to changes in market conditions.

Priority Standards for unit:
- Competition among sellers usually lowers costs and prices, and encourages producers to produce what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them. CEE-9a
- Explain how changes in the level of competition in different markets can affect price and output levels. CEE-9b
- Entrepreneurs take on the calculated risk of starting new businesses, either by embarking on new ventures similar to existing ones or by introducing new innovations. Entrepreneurial innovation is an important source of economic growth. CEE-14

Supporting Standards for unit:
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  - Identify and define authentic problems and significant questions for investigation.
  - Plan and manage activities to develop a solution or complete a project.
  - Collect and analyze data to identify solutions and/or make informed decisions.
  - Use multiple processes and diverse perspectives to explore alternative solutions.
- Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - Plan strategies to guide inquiry.
  - Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
  - Process data and report results.
**Essential Questions:**
1. What items are included in a firm’s costs of production?
2. What characteristics make a market competitive?
3. When do competitive firms decide whether to exit or enter a market?
4. How does a monopoly determine the quantity to produce and the price to charge?
5. How does prisoners’ dilemma apply to oligopolies?
6. How do the outcomes under monopolistic competition and under perfect competition compare?

**Enduring Understanding/Big Ideas:**
1. When analyzing a firm’s behavior, it is important to include all the opportunity costs of production. Some of the opportunity costs, such as the wages a firm pays its workers, are explicit. Other opportunity costs, such as the wages the firm owner gives up by working in the firm rather than taking another job, are implicit. When analyzing firm behavior, it is often useful to graph average total cost and marginal cost. For a typical firm, marginal cost rises with the quantity of output. Average total cost first falls as output increases and then rises as output increases further. The marginal-cost curve always crosses the average-total-cost curve at the minimum of average total cost.
2. Because a competitive firm is a price taker, its revenue is proportional to the amount of output it produces. The price of the good equals both the firm’s average revenue and its marginal revenue. To maximize profit, a firm chooses a quantity of output such that marginal revenue equals marginal cost. Because marginal revenue for a competitive firm equals the market price, the firm chooses quantity so that price equals marginal cost. Thus, the firm’s marginal cost curve is its supply curve.
3. In the short run when a firm cannot recover its fixed costs, the firm will choose to shut down temporarily if the price of the good is less than average variable cost. In the long run, when the firm can recover both fixed and variable costs, it will choose to exit if the price is less than average total cost. In a market with free entry and exit, profits are driven to zero in the long run. In this long-run equilibrium, all firms produce at the efficient scale, price equals minimum average total cost, and the number of firms adjusts to satisfy the quantity demanded at this price.
4. Because a monopoly is the sole producer in its market, it faces a downward-sloping demand curve for its product. When a monopoly increases production by one unit, it causes the price of its good to fall, which reduces the amount of revenue earned on all units produced. As a result, a monopoly’s marginal revenue is always below the price of its good. Like a competitive firm, a monopoly firm maximizes profit by producing the quantity at which marginal revenue equals marginal cost. The monopoly then chooses the price at which that quantity is demanded. Unlike a competitive firm, a monopoly firm’s price exceeds its marginal revenue, so its price exceeds marginal cost.
5. The prisoners’ dilemma shows that self-interest can prevent people from maintaining cooperation, even when cooperation is in their mutual interest. The logic of the prisoners’ dilemma applies in many situations including arms races, advertising, common-resource problems, and oligopolies.
6. The equilibrium in a monopolistically competitive market differs from that in a perfectly competitive market in two related ways. First, each firm has excess capacity. That is, it operates on the downward-sloping portion of the average-total-cost curve. Second, each firm charges a price above marginal cost. Monopolistic competition does not have all of
the desirable properties of perfect competition. There is the standard deadweight loss of monopoly caused by the markup of price over marginal cost. In addition, the number of firms (and thus the variety of products) can be too large or too small. In practice, the ability of policymakers to correct these inefficiencies is limited.
<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collusion</td>
<td>Average Revenue</td>
</tr>
<tr>
<td>Competition</td>
<td>Cartel</td>
</tr>
<tr>
<td>Exit Or Enter The Market</td>
<td>Competitive Market</td>
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<tr>
<td>Market</td>
<td>Game Theory</td>
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<td>Shut Down</td>
<td>Long Run And Short Run</td>
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<tr>
<td>Sunk Cost</td>
<td>Marginal Revenue</td>
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<td></td>
<td>Marginal Revenue = Marginal Cost</td>
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<td></td>
<td>Monopolistic Competition</td>
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<tr>
<td></td>
<td>Monopoly</td>
</tr>
<tr>
<td></td>
<td>Oligopoly</td>
</tr>
</tbody>
</table>

**Resources for Vocabulary Development:** Principles of Economics by Mankiw, 4e; Quizlet.com; Investopedia.com
**Engaging Experience 1**

**Title:** Review of the profit maximization rule MR=MC  
**Suggested Length of Time:** 45 Minutes  
**Standards Addressed**

**Priority:**  
- Explain how changes in the level of competition in different markets can affect price and output levels. CEE-9b

**Supporting:**  
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  - Identify and define authentic problems and significant questions for investigation.
  - Plan and manage activities to develop a solution or complete a project.
  - Collect and analyze data to identify solutions and/or make informed decisions.
  - Use multiple processes and diverse perspectives to explore alternative solutions.

**Detailed Description/Instructions:** YouTube – AC DC Leadership’s Channel  
More econ review videos from my new favorite YouTube channel, Jacob Clifford’s *Econ Concepts in 60 Seconds*.

To review for the upcoming test, you will join a small group and watch one of the four videos on the Perfect Competition. After watching and discussing one video with your group, you will be re-assigned to another group with students who watched a different video. You will then lead a short discussion on your original video with your new group.

With your first group – 15 minutes: As your group watches its assigned video, have your notes open in front of you and draw the graphs Mr. Clifford draws along with him. Pause the video where necessary to have time to draw graphs. Take notes while watching the video so you can teach it to another group. With your group, prepare a short discussion of the video’s main points, including:

- What rule or lesson about Perfect Competition does the video focus on?
- What did you already know that this video reminded you of or reinforced your understanding of?
- What did this video introduce that was new to you?
- How were graphs used to teach the concepts?

With your second group – 20 minutes: For the second part of this assignment, there should be four new groups, each including one member of the four original groups.

- Each group member should lead a 2-3 minute discussion of the video he or she watched in the first group.
- Go over each of the discussion points from above.
- Answer any questions your new group members have about video you watched.

**Videos:**

- **Group 1 – The Profit Maximization Rule – MR=MC:** https://www.youtube.com/watch?feature=player_embedded&v=qaQRM6W1xpA
● Group 2 – Perfect Competition in the short-run: https://www.youtube.com/watch?feature=player_embedded&v=yY8f571AUxk

Cite: AC/DC Leadership Channel http://www.youtube.com/user/ACDCLeadership
Bloom’s Levels: Create
Webb’s DOK: 4
Rubric: To be created

Engaging Experience 2
Title: A profitable opportunity?
Suggested Length of Time: 15-20 Minutes
Standards Addressed
Priority:
● Competition among sellers usually lowers costs and prices, and encourages producers to produce what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them. CEE-9a
Supporting:
● N/A

Detailed Description/Instructions: This exercise reinforces the importance of marginal cost in decision making. It shows average costs can be misleading.

Tell the class, “As a recent graduate of this college you have landed a job in production management for Universal Clones, Inc. You are responsible for the entire company on weekends.”

“Your costs are shown below.”

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Average Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>200</td>
</tr>
<tr>
<td>501</td>
<td>201</td>
</tr>
</tbody>
</table>

Your current level of production is 500 units. All 500 units have been ordered by your regular customers.

“The phone rings. It’s a new customer who wants to buy one unit of your product. This means you would have to increase production to 501 units. Your new customer offers you $450 to produce the extra unit.”

● a. Should you accept this offer?
● b. What is the net change in the firm’s profit?

Common Answers and Points for Discussion
Most students will answer “yes.” Selling something for $450 when the average cost of production is $201 seems like good business. They are wrong.

The relevant comparison is marginal cost to marginal revenue. Marginal cost can be easily calculated as the change in total costs.

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Average Total Cost</th>
<th>Total Cost = ( Q \cdot ATC )</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>200</td>
<td>100,000</td>
</tr>
</tbody>
</table>
$100,701 – $100,000 = $701

Marginal cost in this example is $701. This is much higher than the marginal revenue of $450. The offer should not be accepted. It would result in a $251 loss.


Bloom’s Levels: Analyze
Webb’s DOK: 4
Rubric: To be created
Engaging Experience 1
Title: Short run versus Long run decisions: shut down or stay productive
Suggested Length of Time: 15-20 Minutes
Standards Addressed

Priority:
- Entrepreneurs take on the calculated risk of starting new businesses, either by embarking on new ventures similar to existing ones or by introducing new innovations. Entrepreneurial innovation is an important source of economic growth. CEE-14

Supporting:
- N/A

Detailed Description/Instructions: Business decisions to enter or exit the market questions. Analyze the following graph and answer the corresponding questions.

S-R, L-R DECISIONS BASED ON COST CURVES

The graph should be compared and used to answer the following questions:

1. Which price indicates a definite shut-down scenario in the short-run?
   A. B. C. D. E.

2. Which price indicates a definite operate in the S-R and shut-down in the long-run?
   A. B. C. D. E.

3. Which price indicates zero economic profit?
   A. B. C. D. E.

4. Which of the prices leaves you indifferent to S-R shutting down or operating in the S-R?
   A. A B. B C. C. D. D E. E AB. None of the prices offered

5. Which price would indicate that the industry is going to expand the most?
   A. B. C. D. E.
6. Which two prices are sending the owner the same message about the long-run?
   A. A&B  B. B&C  C. B&D  D. D&E  E. A&C

7. Which curve is the MC curve?
   A. GG  B. HH  C. FF

8. What two curves have the same starting point?
   A. GG and HH  B. GG and FF  C. HH and FF

9. The distance between which two curves times the quantity produced gives you Fixed Cost
   A. GG and FF  B. FF and HH  C. GG and HH

Bloom’s Levels: Apply
Webb’s DOK: 2
Rubric: To be created

Engaging Experience 2
Title: Perfectly Competitive AP free response essay
Suggested Length of Time: 20 Minutes
Standards Addressed

Priority:
● Explain how changes in the level of competition in different markets can affect price and output levels. CEE-9b

Supporting
● N/A

Detailed Description/Instructions: Answer the questions in regards to the AP Microeconomics practice essay concerning Perfectly Competitive markets below.

ESSAY for a Perfectly Competitive Industry
This essay should consume about 25 minutes of your time. Spend about 5 minutes reading, rereading the essay questions and then plotting your answer before actually starting your answer.

I. Using side-by-side graphs show a perfectly competitive firm and its industry in Long-run equilibrium.
   Make sure to fully label both graphs. (8 points)
   i. Identify industry P and Q axis
   ii. Correctly draw and label typical supply and demand curves for the industry
   iii. Identify industry equilibrium P and Q
   iv. Correctly label the axis for a firm in perfect competition
   v. Correctly draw a set of ATC and MC curves
   vi. Fully label the firm’s demand curve
   vii. Identify firm’s output (o)
   viii. Show where the firm gets its demand curve

II. Using a second set of side-by-side graphs show how a successful, zero cost, advertising promotion affects the Perfectly Competitive Industry in the short-run. (3 points)
   i. Identify the new P and Q for the industry
   ii. Identify the output level for the firm
   iii. Show and label any profit or loss

III. With the short-run situation created above in II, explain what will happen to the number of firms in the industry and why. (1 point)
IV. How will an observer know that the industry is no longer in the short-run situation created by the advertising? (1 point)

The essay can be modified to have demand decrease, or much more difficult by having either fixed or variable costs change. To make the essay more realistic by AP standards, erase i through vii in part I.

A good practice is to draw the Industry graph first so one can ‘drag’ the Price over to the firm. However, you can start with the firm and show that it is the firm’s cost structure that helps the Industry determine the industry-wide price.

Bloom’s Levels: Evaluate

Webb’s DOK: 3

Rubric: 13 points total, you want students to get 7 or more. Striving for 13 may not be a wise allocation of essay writing time if the other two essays are yet to be written.

PART I
1 pt for axis correctly labeled P and Q for the industry or market
1 pt for correctly drawn and labeled S and D curves
1 pt for identifying the equilibrium P and Q, either by label on axis or lines drawn to the axis
1 pt for putting cost/unit or price per unit on vertical and output or small q on horizontal
1 pt for a u-shaped ATC with MC curve passing through its minimum point
1 pt for a horizontal demand curve that is labeled: D=MR=P, in any order
1 pt for identifying the firm’s output
1 pt for either “dragging” the price across the two graphs, or by explaining that the price in the industry is the price the firm faces.

PART II
1 pt for correctly shifting the Demand curve up and to the right, and for showing the new P and Q
1 pt for showing the small change in the typical firm’s output level
1 pt for correctly showing and labeling the profit area

PART III
1 pt for saying that the number of firms in the industry will increase, or that there will be entry

PART IV
1 pt for saying that entry will cease because the profitability of the industry will stop
Engaging Experience 1
Title: College costs and price discrimination power of monopolies
Suggested Length of Time: 30-40 Minutes
Standards Addressed

Priority:
- Explain how changes in the level of competition in different markets can affect price and output levels. CEE-9b

Supporting:

Detailed Description/Instructions: After reading the handout of college costs have students identify other areas of monopolistic behavior and price discrimination used by business. See Appendix E for additional information.

Bloom’s Levels: Apply
Webb’s DOK: 3
Rubric: Check for understanding

Engaging Experience 2
Title: Free Response question AP Microeconomics Monopoly market structure
Suggested Length of Time: 15-20 Minutes
Standards Addressed

Priority:
- Explain how changes in the level of competition in different markets can affect price and output levels. CEE-9b

Supporting:
- N/A

Detailed Description/Instructions: Complete the Monopoly market Free Response questions. Given the diagram for a firm from Appendix F answer the corresponding questions. Simple declarative answers are acceptable. See Appendix F for additional information.

Bloom’s Levels: Evaluate
Webb’s DOK: 3
Rubric: To be created
Engaging Experience 1

Title: Cartels and Competition simulation

Suggested Length of Time: 50 Minutes

Standards Addressed

Priority:

- Entrepreneurs take on the calculated risk of starting new businesses, either by embarking on new ventures similar to existing ones or by introducing new innovations. Entrepreneurial innovation is an important source of economic growth. CEE-14

Supporting:

- N/A

Detailed Description/Instructions: Explain that the companies are all producers of the same commodity, selling their product in the same market. Mention that, while there are certainly others who are capable of entering the market, at this point in time, there are only 6 major companies who do almost 98% of the business, worldwide. Emphasize that the goal of each company is to make as much profit as possible. Announce that there will be prizes for all companies earning more than $300 profit and an additional prize for the company that earns the most profit. See appendix G for supporting documentation.

Bloom’s Levels: Evaluate

Webb’s DOK: 4

Rubric: See appendix G for debriefing questions
Topic 5: Monopolistic Competition

Engaging Experience 1
Title: Monopolistic Competition (Federal Reserve)
Suggested Length of Time: 30 Minutes

Standards Addressed

Priority:
- Explain how changes in the level of competition in different markets can affect price and output levels. CEE-9b

Supporting:
- Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - Plan strategies to guide inquiry.
  - Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
  - Process data and report results.

Detailed Description/Instructions: Follow along with the Federal Reserve PowerPoint slides discussing and elaborating on Monopolistic Competition Cost curves. Be prepared to share with the class the following: optimal output, pricing, TR, TC, profit levels. These slides present graphs related to monopolistic competition, the market structure in which there are many firms that produce similar, but not identical, products and there are few barriers to entry. The slides illustrate firms’ short-run decisions. [https://www.stlouisfed.org/education/monopolistic-competition](https://www.stlouisfed.org/education/monopolistic-competition)

Bloom’s Levels: Analyze
Webb’s DOK: 3
Rubric: To be created
**Engaging Scenario**

*Engaging Scenario* (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

AP Microeconomic released Free Response Questions and released Multiple Choice questions

**Rubric for Engaging Scenario:** College Board rubric
### Summary of Engaging Learning Experiences for Topics

<table>
<thead>
<tr>
<th>Topic</th>
<th>Engaging Experience Title</th>
<th>Description</th>
<th>Suggested Length of Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review of the profit maximization rule MR=MC</td>
<td>YouTube – AC DC Leadership’s Channel More econ review videos from my new favorite YouTube channel, Jacob Clifford’s <em>Econ Concepts in 60 Seconds</em>. To review for the upcoming test, you will join a small group and watch one of the four videos on the Perfect Competition. After watching and discussing one video with your group, you will be re-assigned to another group with students who watched a different video. You will then lead a short discussion on your original video with your new group. &lt;br&gt;&lt;br&gt; <em>Cite: AC/DC Leadership Channel</em></td>
<td>45 Minutes</td>
</tr>
<tr>
<td>1</td>
<td>A profitable opportunity?</td>
<td>This exercise reinforces the importance of marginal cost in decision making. It shows average costs can be misleading. &lt;br&gt;&lt;br&gt; <em>Cite: Mankiw, N. Gregory. Principles of Economics. 4th ed. Ohio. Thomson South-Western, 2007.</em></td>
<td>15-20 Minutes</td>
</tr>
<tr>
<td>2</td>
<td>Short run versus Long run decisions: shut down or stay productive</td>
<td>Business decisions to enter or exit the market questions. Analyze the following graph and answer the corresponding questions.</td>
<td>15-20 Minutes</td>
</tr>
<tr>
<td>2</td>
<td>Perfectly Competitive AP free response essay</td>
<td>Answer the questions in regards to the AP Microeconomics practice essay concerning Perfectly Competitive markets below. A good practice is to draw the Industry graph first so one can ‘drag’ the Price over to the firm. However, you can start with the firm and show that it is the firm’s cost structure that helps the Industry determine the industry-wide price.</td>
<td>20 minutes</td>
</tr>
<tr>
<td>3</td>
<td>College costs and price discrimination</td>
<td>After reading the handout of college costs have students identify other areas of monopolistic</td>
<td>30-40 Minutes</td>
</tr>
</tbody>
</table>
|   | power of monopolies | behavior and price discrimination used by business.  
*See Appendix E* |
|---|-------------------|---------------------------------------------------|
| 3 | Free Response question AP Microeconomics Monopoly market structure | Complete the Monopoly market Free Response questions. Given the diagram for a firm from Appendix F answer the corresponding questions. Simple declarative answers are acceptable.  
*See Appendix F* |
| 4 | Cartels and Competition simulation | Explain that the companies are all producers of the same commodity, selling their product in the same market. Mention that, while there are certainly others who are capable of entering the market, at this point in time, there are only 6 major companies who do almost 98% of the business, worldwide. Emphasize that the goal of each company is to make as much profit as possible. Announce that there will be prizes for all companies earning more than $300 *profit* and an additional prize for the company that earns the most profit.  
*See appendix G* for supporting documentation. |
| 5 | Monopolistic Competition (Federal Reserve) | Follow along with the Federal Reserve PowerPoint slides discussing and elaborating on Monopolistic Competition Cost curves. Be prepared to share with the class the following: optimal output, pricing, TR, TC, profit levels. These slides present graphs related to monopolistic competition, the market structure in which there are many firms that produce similar, but not identical, products and there are few barriers to entry. The slides illustrate firms’ short-run decisions.  
[https://www.stlouisfed.org/education/monopolistic-competition](https://www.stlouisfed.org/education/monopolistic-competition) |

50 Minutes
Unit 5: Factor Markets

Subject: AP Microeconomics  
Grade: 11th-12th  
Name of Unit: Factor Markets  
Length of Unit: 1.5 Weeks  

Overview of Unit: Unit 5 is a three-chapter sequence that addresses the economics of labor markets. Unit 5 develops and analyzes the markets for the factors of production—labor, land, and capital. The Unit explains in more detail why some workers earn more than others. The Unit addresses the distribution of income and the role the government can play in altering the distribution of income. The purpose of Unit 5 is to provide the basic theory for the analysis of factor markets—the markets for labor, land, and capital. As you might expect, we find that the wages earned by the factors of production depend on the supply and demand for the factor. What is new in the analysis is that the demand for a factor is a derived demand. That is, a firm’s demand for a factor is determined by its decision to supply a good in another market.

Priority Standards for unit:
- Productive resources are limited. Therefore, people cannot have all the goods and services they want as a result, they must choose some things and give up others CEE-1.

Supporting Standards for unit:
- Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - Plan strategies to guide inquiry.
  - Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
  - Process data and report results.
**Essential Questions:**
1. Why do equilibrium wages equal the value of the marginal product of labor?
2. How are the other factors of production, land and capital, compensated?
3. How does a change in the supply of one factor alter the earnings of all of the factors?

**Enduring Understanding/Big Ideas:**
1. The demand for factors, such as labor, is a derived demand that comes from firms that use the factors to produce goods and services. Competitive, profit-maximizing firms hire each factor up to the point at which the value of the marginal product of the factor equals its price.
2. The price paid to each factor adjusts to balance the supply and demand for that factor. Because factor demand reflects the value of the marginal product of that factor, in equilibrium each factor is compensated according to its marginal contribution to the production of goods and services.
3. Because factors of production are used together, the marginal product of any one factor depends on the quantities of all factors that are available. As a result, a change in the supply of one factor alters the equilibrium earnings of all the factors.

**Unit Vocabulary:**

<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Entrepreneurs</td>
<td>● Economic Rent</td>
</tr>
<tr>
<td>● Firms</td>
<td>● Marginal Physical Product</td>
</tr>
<tr>
<td>● Profits</td>
<td>● Marginal Resource Cost</td>
</tr>
<tr>
<td>● Resources</td>
<td>● Monopsony</td>
</tr>
<tr>
<td>● Wages</td>
<td>● Perfectly Competitive Labor Market</td>
</tr>
</tbody>
</table>

**Resources for Vocabulary Development:** Principles of Economics by Mankiw, 4e; Quizlet.com; Investopedia.com
Topic 1: Factors of Production

Engaging Experience 1
Title: Factors of Production
Suggested Length of Time: 45-60 Minutes

Standards Addressed

Priority:

- Productive resources are limited. Therefore, people cannot have all the goods and services they want as a result, they must choose some things and give up others CEE-1.

Supporting:

- Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - Plan strategies to guide inquiry.
  - Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
  - Process data and report results.

Detailed Description/Instructions: Read the following article, see link below. Read the following discussion points and answer the three attached discussion questions.


In the revealing story above, the NYT reports on the manufacture of the New York’s thousands of manhole covers, which it turns out come primarily from a foundry in the Indian state of West Bengal. An NYT photographer discovered the Indian factory, and his photos prompted the report here:

Eight thousand miles from Manhattan, barefoot, shirtless, whip-thin men rippled with muscle were forging prosaic pieces of the urban jigsaw puzzle: manhole covers. Seemingly impervious to the heat from the metal, the workers at one of West Bengal’s many foundries relied on strength and bare hands rather than machinery. Safety precautions were barely in evidence; just a few pairs of eye goggles were seen in use on a recent visit.

Land, labor, and capital are all needed to produce any output; the combination of these resources a firm will use depends on several factors, including the productivity and the prices of the resources. When the price of labor is low, firms tend to use more labor and less capital. In developing countries, especially those with a large, unskilled workforce (like India), firms are likely to specialize in the production of labor-intensive products, such as the manholes found in American cities like New York.

The scene at the Indian foundry sounds like something from the Middle Ages:

The temperature outside the factory yard was more than 100 degrees on a September visit. Several feet from where the metal was being poured, the area felt like an oven, and the workers were slick with sweat.

Often, sparks flew from pots of the molten metal. In one instance they ignited a worker’s lungi, a skirt like cloth wrap that is common men’s wear in India. He quickly, reflexively, doused the flames by rubbing the burning part of the cloth against the rest of it with his hand, then continued to cart the metal to a nearby mold.
Once the metal solidified and cooled, workers removed the manhole cover casting from the mold and then, in the last step in the production process, ground and polished the rough edges. Finally, the men stacked the covers and bolted them together for shipping.

Why are New York’s manhole covers being made over 8,000 miles away, anyway? Wouldn’t it make more sense for American cities to buy such items from firms making them right here in the United States? To understand this question, we need to consider the principle of comparative advantage, which says that a nation should specialize in the production of the products for which it has the lowest opportunity costs.

Manhole covers manufactured in India can be anywhere from 20 to 60 percent cheaper than those made in the United States, said Alfred Spada, the editor and publisher of Modern Casting magazine and the spokesman for the American Foundry Society. Workers at foundries in India are paid the equivalent of a few dollars a day, while foundry workers in the United States earn about $25 an hour.

Bengali laborers working in India’s foundries most likely face the tradeoff of an agrarian existence or maybe another factory job in the pre-industrial economy of the impoverished region, alternatives presenting a much low opportunity cost than American workers whose alternatives include jobs offering much higher productivity. The productivity of a worker depends on the quality and quantity of capital available, the level of training and education of the worker himself. Clearly, Indian workers have less access to capital, lower quality capital, and much less training and education than their American counterparts.

The result is that jobs that require large inputs of low-skilled labor, such as the manufacture of manhole covers, end up being “off-shored” to remote corners of South Asia. The added cost of shipping thousands of ton of iron around the world is more than made up for by the lower resource prices (thus costs of production) in the West Bengali foundries.

Discussion Questions:
● Why do the Indian foundries use such large inputs of labor, and relatively little machinery?
● What factors might reduce the demand for labor in the Indian foundries?
● How does a firm know if it’s using the right combination of capital and labor in its production?

Cite: New York Times article

Bloom’s Levels: Evaluate
Webb’s DOK: 3
Rubric: To be created
Engaging Experience 1

Title: Even Money

Suggested Length of Time: 20-30 Minutes

Standards Addressed

Priority:
- Productive resources are limited. Therefore, people cannot have all the goods and services they want as a result, they must choose some things and give up others CEE-1.

Supporting:
- N/A

Detailed Description/Instructions: See below

This assignment explores labor market issues by looking at an artificial situation of complete equality. Notions of incentives and job differences are explored. This usually provokes lively discussion, particularly if the proposal is presented as a realistic alternative.

Instructions: Have the class answer the following questions. Give them time to write an answer to a question, then discuss their answers before moving to the next question.

Ask the students to consider replacing the current U.S. economic system with a system where everyone is paid exactly the same salary. Assume that each family would receive an equal share of GDP. For a typical four-person household, this would be over $90,000.

- Would you personally favor this system? Explain.
- What problems would exist?
- What mechanisms could be enacted to overcome these problems?
- Who would benefit from this system?
- What jobs would be hard to fill?

Common Answers and Points for Discussion

1. Would you personally favor this system? Explain.
   Most students oppose a completely egalitarian distribution of income. Some expect to earn more under the existing system. Others see a variety of problems that make equality unworkable. Others simply see it as “un-American.”

2. What problems would exist?
   Numerous problems exist. National income may fall if the incentives to work are changed drastically. People may not work at all. Others may put forth less work effort. Unpleasant jobs are unlikely to be completed. Everyone would want a fun job. New inventions and technological advance could be hindered. Saving and investment and investment rates would be low. Education would become unimportant. Immigration rates could increase.

3. What mechanisms could be enacted to overcome these problems?
   Income could still be denied to people who did not work, and workers could still be fired for inadequate effort. Households could be required to participate in the labor force. Unpleasant jobs could be modified to improve safety, sanitation, or difficulty. Shorter hours could be assigned to those performing the least desirable work. In short, a complete set of alternative incentives would have to be developed. These incentives become increasingly complex as more and more aspects of the price system are replaced.
   Who would benefit from equalizing the distribution of income?
4. A vast majority of households would gain (in the short run, if the system worked) because the median household income is so much lower than an equal share of GDP.

5. What jobs would be hard to fill?
Students break into two groups on this question. Many see the undesirable jobs as menial, rote, unsafe, or unclean. Slaughterhouses, garbage disposal, and assembly-line work are frequent examples.

- A relevant follow-up question is: “Why would these jobs be hard to fill at $90,000 a year, when people currently work these jobs for much lower wages?”
- Another group of students think professional jobs would be undesirable. Doctors, lawyers, and executives are their examples.
- Ask them, “Are these jobs worse than sucking the guts out of a dead chicken? These jobs seem to have better working conditions, high levels of personal autonomy, and some interesting challenges. Are people in these jobs motivated by more than money?”
- Looking at the best jobs, many students seem to feel the ultimate “fun job” would be in professional sports. Ask them why these workers need to receive millions of dollars in compensation.
- This assignment can be used to introduce a number of topics such as market allocation of resources, distribution of income, risk premiums, compensating differentials, and returns to human capital.


Bloom’s Levels: Evaluate
Webb’s DOK: 3
Rubric: To be created
Engaging Scenario

**Engaging Scenario** (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

Released AP Microeconomic Free Response Questions and released Multiple Choice questions

**Rubric for Engaging Scenario:** College Board AP Rubric
## Summary of Engaging Learning Experiences for Topics

<table>
<thead>
<tr>
<th>Topic</th>
<th>Engaging Experience Title</th>
<th>Description</th>
<th>Suggested Length of Time</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Factors of Production</td>
<td>Read the following article, see link below. Read the following discussion points and answer the three attached discussion questions. <a href="http://www.nytimes.com/2007/11/26/nyregion/26manhole.html?_r=3&amp;ref=todayspaper&amp;oref=slogin&amp;oref=slogin&amp;">http://www.nytimes.com/2007/11/26/nyregion/26manhole.html?_r=3&amp;ref=todayspaper&amp;oref=slogin&amp;oref=slogin&amp;</a>.</td>
<td>45-60 Minutes</td>
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</table>
| 2     | Even Money                | This assignment explores labor market issues by looking at an artificial situation of complete equality. Notions of incentives and job differences are explored. This usually provokes lively discussion, particularly if the proposal is presented as a realistic alternative. **Instructions:** Have the class answer the following questions. Give them time to write an answer to a question, then discuss their answers before moving to the next question. Ask the students to consider replacing the current U.S. economic system with a system where everyone is paid exactly the same salary. Assume that each family would receive an equal share of GDP. For a typical four-person household, this would be over $90,000.  
  - Would you personally favor this system? Explain.  
  - What problems would exist?  
  - What mechanisms could be enacted to overcome these problems?  
  - Who would benefit from this system?  
  - What jobs would be hard to fill? | 20-30 Minutes |
Unit 6: Role of Government

Subject: AP Microeconomics
Grade: 11th-12th Grade
Name of Unit: Role of Government
Length of Unit: 3 Weeks

Overview of Unit: Unit 6 addresses the measurement of the distribution of income and looks at the role the government plays in altering the distribution of income. The discussion proceeds by answering three questions. First, how much inequality is there? Second, what do different political philosophies have to say about the proper role of government in altering the distribution of income? And third, what are the various government policies that are used to help the poor?

Priority Standards for unit:
- People usually respond predictably to positive and negative incentives. CEE-4
- Describe the roles of various economic institutions and explain the importance of property rights in a market economy. CEE-10
- Predict the consequences of investment decisions made by individuals, businesses, and governments. CEE-15
- There is an economic role for government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also have direct or indirect effects on people’s incomes. CEE-16

Supporting Standards for unit:
- Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - Plan strategies to guide inquiry.
  - Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
  - Process data and report results.
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  - Identify and define authentic problems and significant questions for investigation.
  - Plan and manage activities to develop a solution or complete a project.
  - Collect and analyze data to identify solutions and/or make informed decisions.
  - Use multiple processes and diverse perspectives to explore alternative solutions.
**Essential Questions:**
1. Why do externalities on occasion make market outcomes inefficient?
2. Why do private solutions to externalities sometimes do not work?
3. What are the defining characteristics of public goods and common resources?

**Enduring Understanding/Big Ideas:**
1. When a transaction between a buyer and seller directly affects a third party, that effect is called an externality. If an activity yields negative externalities, such as pollution, the socially optimal quantity in a market is less than the equilibrium quantity. If an activity yields positive externalities, such as technology spillovers, the socially optimal quantity is greater than the equilibrium quantity.
2. When private parties cannot adequately deal with external effects, such as pollution, the government often steps in. Sometimes the government prevents socially inefficient activity by regulating behavior. Other times it internalizes an externality using corrective taxes. Another way to protect the environment is for the government to issue a limited number of pollution permits. The end result of this policy is largely the same as imposing corrective taxes on polluters.
3. Goods differ in whether they are excludable and whether they are rival in consumption. A good is excludable if it is possible to prevent someone from using it. A good is rival in consumption if one person’s use of the good reduces other people’s ability to use the same unit of the good. Markets work best for private goods, which are both excludable and rival in consumption. Markets do not work as well for other types of goods.

**Unit Vocabulary:**

<table>
<thead>
<tr>
<th>Academic Cross-Curricular Words</th>
<th>Content/Domain Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Environment</td>
<td>● Externalities</td>
</tr>
<tr>
<td>● Public Choice</td>
<td>● Market Failure</td>
</tr>
<tr>
<td>● Public Goods</td>
<td>● Negative Externalities</td>
</tr>
<tr>
<td>● Social Benefits</td>
<td>● Positive Externalities</td>
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<tr>
<td>● Social Costs</td>
<td>● Progressive Tax</td>
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<tr>
<td>● Subsidies</td>
<td>● Proportional Tax</td>
</tr>
<tr>
<td>● Tax</td>
<td>● Regressive Tax</td>
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</tbody>
</table>

**Resources for Vocabulary Development:** Principles of Economics by Mankiw, 4e; Quizlet.com; Investopedia.com
Engaging Experience 1

Title: Everyone “enjoys” a Good Cigar

Suggested Length of Time: 3-10 Minutes

Standards Addressed

Priority:
- ● Describe the roles of various economic institutions and explain the importance of property rights in a market economy. CEE-10

Supporting:
- ● N/A

Detailed Description/Instructions: The purpose of this activity is to help students understand external costs and why externalities cause non-optimal outcomes. It also illustrates externalities in consumption.

Instructions: Facilitate a conversation about being in a smoked filled confined room and how it is irritating. This demonstration could be done using other irritants besides cigar smoke. A loud radio could be played during the lecture. Garlic bread or crackers could be offered to half the students. Again, the private decisions will not lead to a socially optimal outcome. Ask if anyone has objections to others smoking around them. (Discuss what happens when one smokes in a confined area.)

Common Answers and Points for Discussion
Most of the class will object to daily exposure to smoke. Secondhand smoke is a negative externality, imposing costs on the class. The smoker’s decision, based on his or her own pleasure, ignores these external costs. The private decision will not be optimal.

If the class is large enough, there will frequently be a small group of students who chat during lecture. They can be used as an example of negative externalities. Their decision to talk is based on their own private enjoyment, disregarding the external cost they impose on their classmates. Once again, private decisions lead to an inefficient outcome.


Bloom’s Levels: Understand

Webb’s DOK: level 4

Rubric: To be created

Engaging Experience 2

Title: Has the baby market failed?

Suggested Length of Time: 1 Day

Standards Addressed

Priority:
- ● People usually respond predictably to positive and negative incentives. CEE-4

Supporting:
- ● Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - ○ Plan strategies to guide inquiry.
  - ○ Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
○ Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
○ Process data and report results.

**Detailed Description/Instructions:** Read the document below, listen to the NPR audio file on paying couples to have children, analyze the graphs below and answer the discussion questions that follow.

The tools of economics can be applied to almost any social institution, even the decision of individuals in society whether or not to have children. All over the rich world today, potential parents have decided against having babies, the result being lower fertility rates across much of Europe and the richer countries in Asia, including Japan, South Korea and Singapore. Lower fertility rates have some advantages, such as less pressure on the country’s natural resources, but the disadvantages generally outweigh the benefits.

The story below, from NPR, explains in detail some of the consequences of declining fertility rates in the rich world, and identifies some of the ways governments have begun to try to increase the fertility rates.


The problem of declining fertility rates can be analyzed using simple supply and demand analysis. In the graph below, we see that the marginal private cost of having children in rich countries is very high. The costs of having children include not only the monetary costs of raising the child, but the opportunity costs of forgone income of the parent who has to quit his or her job to raise the child or the explicit costs of child care, which in some countries can cost thousands of dollars per month. Marginal private cost corresponds with the supply of babies, since private individuals will only choose to have children if the perceived benefit of having a baby exceeds the explicit and implicit costs of child-rearing.

The marginal private benefit of having babies is downward sloping. This reflects the fact that if parents have just one or two children, the benefit of these children is relatively high, due to the emotional and economic contributions a first and second child will bring to parents’ lives. But the more babies a couple has, the less additional benefit each successive child provides the parents. This helps explain why in an era of increased gender equality, families with three or more children are incredibly rare. The diminishing marginal benefit experienced by individual
couples applies to society as a whole as well, therefore the market above could represent either the costs or benefits of individual parents or of society at large.

Notice, however, that that the marginal social benefit of having babies is greater than the marginal private benefit. In economics terminology, there are positive externalities of having babies; in other words, additional children provide benefits to society beyond those emotional and economic benefits enjoyed by the parents. The podcast explained some of these external, social benefits of having children: a larger workforce for firms to employ in the future, more people paying taxes, allowing the government to provide more public goods, more workers supporting the non-working retirees of a nation, and more competitive wages in the global market for goods and services. Higher fertility rates, in short, result in more economic growth and higher incomes for a nation.

When individuals decide how many children to have, they make this decision based solely on their private costs and benefits, since the external benefits of having more babies are enjoyed by society, but not necessarily by the parents themselves. Therefore, left entirely alone, the “free market” will produce fewer babies (Qe) than is socially optimal (Qso).

So what are Western governments doing about low fertility rates? The podcast identifies several strategies being employed to narrow the gap between Qe and Qso. In Australia households receive a $1000 subsidy for each baby born. In Germany mothers receive a year of paid leave from work. Here in Switzerland mothers get three months of government paid leave and $200 a month subsidy to help pay for child care after that. Each of these government policies represents a “baby subsidy”. In the graph above, we can see the intended effect of these policies. By making it more affordable to have children, governments are hoping to reduce the marginal private cost to parents, encouraging them to have more children, which on a societal level should increase the number of babies born so that it is closer to the socially optimal level (Qso).

Unfortunately, as the podcast explains, it appears that parents are relatively unresponsive to the monetary incentives governments are providing. This can be explained by the fact that the private demand (MPB) for babies is highly inelastic. Even if the “cost” of having a baby falls due to government subsidies, parents across the Western world are reluctant to increase the number of babies they have.
As we can see in the graph above, a subsidy for babies reduces the marginal private cost of child-rearing to parents. But the MPB curve, representing the private demand for babies, is highly inelastic, meaning the large subsidy has minimal effect on the quantity of babies produced. Without the subsidy, $Q_e$ babies would be born, while with the subsidy only $Q_s$ are born, which is closer to the socially optimal number of births at $Q_{so}$, but still short of the number of births society truly needs.

The “market for babies” in rich countries is failing. Because of the positive externalities of having children, parents are currently under-producing this “merit good”. One of two things must happen to resolve this market failure. Either the marginal private costs of having babies must fall by much more than the government subsidies for babies have allowed, or the marginal private benefit must increase. Either larger subsidies are needed, or some moral revival aimed at encouraging potential parents to consider both the private and social benefits of having children when making their decisions.

Don’t you love economics? We make everything seem so logical! And like they say, it all comes down to supply and demand!

**Discussion Questions:**

- What makes low fertility rates among parents in the rich world an example of a “market failure”?
- What are the primary reasons fertility rates are lower in the rich world than they are in the developing world?
- What are the economic consequences of lower birth rates? What are the environmental consequences of lower birth rates? Should government be trying to increase the number of babies born?
- Why have government incentives for parents to have more babies failed to achieve the fertility rates that government wish they would achieve?
- Do you believe that government can create strong enough incentives for parents to have more babies? If not, what will become of the populations of Western Europe and the rich countries of Asia given today’s low fertility rates? Should we be worried?

*Cite: Jason Welker, Economics in Plain English Blog, November 1, 2012*

http://welkerswikinomics.com/blog/2012/11/01/baby-market/

**Bloom’s Levels:** Evaluate

**Webb’s DOK:** 4

**Rubric:** to be created
Topic 2: Coase Theorem

Engaging Experience 1
Title: Environmental Economics
Suggested Length of Time: 30-45 Minutes
Standards Addressed

Priority:
- Describe the roles of various economic institutions and explain the importance of property rights in a market economy. CEE-10

Supporting:
- N/A

Detailed Description/Instructions: Read the following story from Jason Welker and answer the attached questions.

This is a minor topic in an AP Economics course, part of the Market Failure and Externalities units. Basically, the Coase Theorem presents individuals involved in a property rights dispute a market-based mechanism for correcting the existence of an externality, as opposed to turning to the government or the legal system. Whitehead’s article linked here goes into a bit more depth than the typical principles textbook, but clarifies some of the misconceptions and shortcomings of the basic theorem introduced in those texts.

When I was a kid we lived in this little yellow house outside of Minneapolis, where summers are brutally hot and humid. Our next door neighbor had a huge old oak tree in his yard with branches that spread out over our yard and provided us with shade for playing outside on hot summer days. One day, after a bad lightning storm, our neighbor became afraid that this huge oak tree might someday get struck by lightning and fall on his house, so he decided to cut it down. When my dad saw our neighbor going out in the yard with a chainsaw, he went out to plead with our neighbor not to cut down this tree. The problem was, the shade provided by the tree fell mostly in our yard, while the tree itself was in our neighbor’s yard! He had no incentive to keep the tree standing; in fact due to the threat posed to his roof in the case of a major storm, he actually had an incentive to cut it down!(Welker)

Okay, so what’s the market failure here? This relates to property rights. My family feels we have the right to a shaded yard, while our neighbor feels he has the right to cut down a tree that he believes threatens his roof. The continued existence of the tree creates a spillover benefit for my family, therefore the tree’s full benefit to society is not taken into account when our neighbor goes to cut it down. If he does so, my family will suffer. (Welker)

In a way, the removal of the tree would represent an “under-allocation” of resources towards trees and shade in my family’s yard. Cutting it down would lead to a less than socially optimal level of shade. How can the Coase Theorem help resolve this failure to achieve a socially optimal outcome? Let us continue our story:

My dad approached our neighbor under the tree. Our neighbor hesitated starting the chainsaw as my father approached, and paused to listen as my father proposed a deal. What if we agreed to pay him NOT to cut down the tree? Our neighbor thinks this over for a moment. “Hmm... that’s an interesting proposition,” he thinks. The question is, how MUCH should he ask for? (Welker)

Clearly, to answer this question our neighbor had to consider the likelihood of the tree actually falling, the approximate cost of repairing a damaged roof, and by multiplying these figures together he can determine the minimum amount he should try to get from my
father. And my father, well he has to consider how much utility the shade provided by the tree actually provides our family? What is the monetary value of that shade? How much would we be willing to pay to keep that shade? If the value of the shade is equal to or greater than the amount our neighbor would require to keep the tree standing, then perhaps our family can settle with the neighbor without relying on the legal system or any sort of government intervention. (Welker)

In this way, as long as the initial property rights are clearly defined, the Coase Bargaining Theorem results in a socially optimal outcome. My family pays the neighbor an amount he’s willing to accept to not cut the tree down, he leaves it standing, and we keep our shade! A potential market failure is averted using a purely market-based tool, without relying on government or the legal system. I find when I explain Coase using this story, the kids seem to get it more than they did after reading about it in the textbook.

Discussion questions:
- Does the story above represent the existence of a positive or a negative externality? Explain.
- Do you think the Coase Theorem presents a realistic tool for solving externality problems? Why or why not?
- Have you ever been in a situation where you’ve considered actually paying someone not to do something? If so, did your negotiations result in a more desirable outcome than would otherwise have been reached? Explain.

Cite: Jason Welker, Economics in Plain English Blog, January 10, 2008
http://welkerswikinomics.com/blog/2008/01/10/the-coase-theorem-clear-and-simple-kind-of/

The above assignment is used in its entirety from the aforementioned Jason Welker Blog.

Bloom’s Levels: Evaluate
Webb’s DOK: 3
Rubric: To be created
**Engaging Experience 1**

**Title:** AP practice free response essay  
**Suggested Length of Time:** 12-20 Minutes  
**Standards Addressed**

**Priority:**
- There is an economic role for government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also have direct or indirect effects on people’s incomes. CEE-16

**Supporting:**
- N/A

**Detailed Description/Instructions:** Analyze the graph using the Gini coefficient, answer the corresponding questions. Complete the Free response question. *See appendix H* for additional information.

**Bloom’s Levels:** Apply  
**Webb’s DOK:** 3  
**Rubric:** Attached to appendix H
Engaging Experience 1
Title: Tragedy of the Commons
Suggested Length of Time: 45-60 Minutes
Standards Addressed

Priority:
● People usually respond predictably to positive and negative incentives. CEE-4

Supporting:
● Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  ○ Identify and define authentic problems and significant questions for investigation.
  ○ Plan and manage activities to develop a solution or complete a project.
  ○ Collect and analyze data to identify solutions and/or make informed decisions.
  ○ Use multiple processes and diverse perspectives to explore alternative solutions.

Detailed Description/Instructions: We have been studying cases in which markets fail to achieve an efficient, socially optimal level of production and consumption when the private buyers and sellers are left to interact in a free market. Markets fail in many ways; sometimes they produce too much of a good, and sometimes too little is produced. There are some things society would benefit from having more of, while other things society would be better off with less than what is produced by the free market.

When the free market fails to achieve a socially optimal level of output, at which the costs and benefits not just of the individual consumers and producers are accounted for, but all social, environmental and health costs and benefits are weighed as well, the government may be able to improve on the free market outcome by intervening in some way. For example, certain goods deemed beneficial for society are simply under-provided by private firms: Education, infrastructure, public transportation, security, health care… these are all markets in which government often intervenes to increase the provision of the good to society. In other cases, government intervenes to decrease the amount of a good consumed: Cigarettes, alcohol, reckless driving, polluting factories, violence on TV, child pornography, dangerous drugs… in each of these cases governments tend to use taxes, regulation or legislation to reduce the amount of the harmful good available on the market.

Besides the merit (beneficial) goods and the demerit (harmful) goods described above, markets may fail in other ways as well. One notable form of market failure arises due to a phenomenon first articulated by American ecologist Garrett Hardin, who warned of the Tragedy of the Commons. In his 1968 essay, Hardin explained that when there exist common resources, for which there is no private owner, the incentive among rational users of that resources is to exploit it to the fullest potential in order to maximize their own self gain before the resource is depleted. The tragedy of the commons, therefore, is that common resources will inevitably be depleted due to humans’ self-interested behavior, leaving us with shortages in key resources essential to human survival.
Each of the videos below illustrates a different example of the tragedy of the commons.

**Example 1:** Thousands of fishermen empty lake in minutes: [https://youtu.be/_Tc6ywqoL6o](https://youtu.be/_Tc6ywqoL6o)

**Example 2** – Dr. Seuss’s *The Lorax*: [https://www.youtube.com/watch?feature=player_embedded&v=8V06ZOQuo0k](https://www.youtube.com/watch?feature=player_embedded&v=8V06ZOQuo0k)

**Example 3** – Tuna fishing: [https://youtu.be/BA7enKHk5As](https://youtu.be/BA7enKHk5As)

In each of the videos above, there is a common resource (fish and trees) over which no ownership has previously been established. The resource users (the Malian fishermen, the Once- ler and his family and the tuna boat), all have a strong incentive to maximize their own short term gain by extracting and exploiting the resource as quickly as possible.

In the Mali fishing hole, the outcome is observable: within minutes the resource is depleted and there are no more fish for future fisherman to enjoy.

In *The Lorax* the result of the Once-ler’s exploitation of the forest is foretold in the beginning of the story when the young boy comes upon the desolate outskirts of his town. The tragedy of the commons acts as a warning to the tuna fishing industry, in which there are still tuna surviving in the world’s oceans, but at the rates industrial fishing boats such as the *Albatun Tres* exploit the resource, it will not be around much longer.

In each instance above, a market failure occurs. Due to the lack of private ownership over valuable resources, self-interested individuals stand to gain by exploiting them to the fullest extent possible while they still exist. The unfortunate outcome is that over time the resources are exploited unsustainably until they are ultimately depleted. As in the case of merit and demerit goods, the market failure of common resources provides an opportunity for government to intervene to achieve a more socially optimal allocation of resources. In the interview below, Garrett Hardin suggests that there are only two possible solutions to the tragedy of the commons. Watch the video and then respond to the discussion questions that follow.

**Garret Hardin – the Tragedy of the Commons**
[https://youtu.be/L8gAMFTAt2M](https://youtu.be/L8gAMFTAt2M)

**Discussion Questions:**
- Hardin refers to Karl Marx’s adage “from each according to his abilities, to each according to this needs.” What does Hardin have against this socialist idea?
- How does Hardin’s example of a “common pasture” illustrate the tragedy of the commons? How is a common pasture similar to the three examples in the videos above?
- According to Hardin, what are the only two solutions to the common pasture problem? Which of these solutions do you think would be most socially desirable?
- Explain Hardin’s claim that “the unmanaged commons cannot possibly work once the population gets above a certain size”. Of the world’s common resources today, what are some examples of common resources that remain unmanaged?
- Whose responsibility should it be to decide how common resources should be dealt with?
- Do you agree with Hardin’s claim that “the world cannot possibly live at the American standard of living at its present population size”? Which of his predictions do you think is most likely to occur: Will the American (and Western European) standard of living have to go down or will the number of people in the world have to be reduced? Or is there a third possibility? Discuss.

*Cite: Jason Welker, Economics in Plain English Blog, January 11, 2012*

**Bloom’s Levels:** Evaluate; **Webb’s DOK:** 3; **Rubric:** To be created
**Engaging Experience 1**

**Title:** What is a fair tax?

**Suggested Length of Time:** 30-50 Minutes

**Standards Addressed**

*Priority:*

- There is an economic role for government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also have direct or indirect effects on people’s incomes. CEE-16

*Supporting:*

- N/A

**Detailed Description/Instructions:** Almost everyone is concerned about how much we pay in taxes. The best way to determine how much tax you pay is to state your tax as an effective tax rate. An effective tax rate is the percentage of your income you pay in taxes. Read pages 297-298 of “What is a Fair Tax?” answer the understanding questions 1-7 on aforementioned pages. Check for understanding. Have students analyze Federal Individual Income tax data from 1987 and 1997 on page 300. Answer questions 1-5 pages 300-301 using the information from tax charts.

Pair and share the following questions concerning tax rates:

- Is there evidence that the rich are getting richer and the poor get poorer between 1987 and 1997?
- Many politicians argue that the wealthy are not paying their “fair share” of taxes. Based on data, do you agree or disagree? Why? Be sure to specify the criterion you are using.
- Would you argue that the U.S. progressive income tax hinders or promotes income equality? Why?

*Cite:* Advanced Placement Economics Microeconomics: student activities 3rd edition, Morton and Goodman 2006, pages 297-301

**Bloom’s Levels:** Analyze

**Webb’s DOK:** 3

**Rubric:** Check for understanding
Engaging Scenario (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

Released AP Microeconomic Free Response Questions and released Multiple Choice questions

Rubric for Engaging Scenario: College Board AP Rubric
## Summary of Engaging Learning Experiences for Topics

<table>
<thead>
<tr>
<th>Topic</th>
<th>Engaging Experience Title</th>
<th>Description</th>
<th>Suggested Length of Time</th>
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<tbody>
<tr>
<td>1</td>
<td>Everyone “enjoys” a Good Cigar</td>
<td>The purpose of this activity is to help students understand external costs and why externalities cause non-optimal outcomes. It also illustrates externalities in consumption.</td>
<td>3-10 Minutes</td>
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| 2     | Has the baby market failed?                     | Read the document below, listen to the NPR audio file on paying couples to have children, analyze the graphs below and answer the discussion questions that follow.  
  The tools of economics can be applied to almost any social institution, even the decision of individuals in society whether or not to have children. All over the rich world today, potential parents have decided against having babies, the result being lower fertility rates across much of Europe and the richer countries in Asia, including Japan, South Korea and Singapore. Lower fertility rates have some advantages, such as less pressure on the country’s natural resources, but the disadvantages generally outweigh the benefits.  
  The story below, from NPR, explains in detail some of the consequences of declining fertility rates in the rich world, and identifies some of the ways governments have begun to try to increase the fertility rates.  
  [http://www.npr.org/sections/money/2011/11/03/141943008/when-governments-pay-people-to-have-babies](http://www.npr.org/sections/money/2011/11/03/141943008/when-governments-pay-people-to-have-babies) | 1 Day                    |
| 3     | Environmental Economics                         | Read the following story from Jason Welker and answer the attached questions.  
  This is a minor topic in an AP Economics courses, part of the Market Failure and Externalities units. Basically, the Coase Theorem presents individuals involved in a property rights dispute a market based mechanism for correcting the existence of an externality, as opposed to turning to the government or the legal system. Whitehead’s article linked here goes into a bit more depth than | 30-45 Minutes            |
the typical principles textbook, but clarifies some of the misconceptions and shortcomings of the basic theorem introduced in those texts.

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<tr>
<td>4</td>
<td>AP practice free response essay</td>
<td>Analyze the graph using the Gini coefficient, answer the corresponding questions. Complete the Free response question. <em>See appendix H</em> for additional information.</td>
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<tr>
<td>5</td>
<td>Tragedy of the Commons</td>
<td>We have been studying cases in which markets fail to achieve an efficient, socially optimal level of production and consumption when the private buyers and sellers are left to interact in a free market. Markets fail in many ways; sometimes they produce <em>too much</em> of a good, and sometimes <em>too little</em> is produced. There are some things society would benefit from having more of, while other things society would be better off with less than what is produced by the free market.</td>
</tr>
<tr>
<td>6</td>
<td>What is a fair tax?</td>
<td>Almost everyone is concerned about how much we pay in taxes. The best way to determine how much tax you pay is to state your tax as an effective tax rate. An effective tax rate is the percentage of your income you pay in taxes. Read pages 297-298 of “What is a Fair Tax?” answer the understanding questions 1-7 on aforementioned pages. Check for understanding. Have students analyze Federal Individual Income tax data from 1987 and 1997 on page 300. Answer questions 1-5 pages 300-301 using the information from tax charts. Pair and share the following questions concerning tax rates:</td>
</tr>
</tbody>
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Unit of Study Terminology

**Appendices:** All Appendices and supporting material can be found in this course’s shell course in the District’s Learning Management System.

**Assessment Leveling Guide:** A tool to use when writing assessments in order to maintain the appropriate level of rigor that matches the standard.

**Big Ideas/Enduring Understandings:** Foundational understandings teachers want students to be able to discover and state in their own words by the end of the unit of study. These are answers to the essential questions.

**Engaging Experience:** Each topic is broken into a list of engaging experiences for students. These experiences are aligned to priority and supporting standards, thus stating what students should be able to do. An example of an engaging experience is provided in the description, but a teacher has the autonomy to substitute one of their own that aligns to the level of rigor stated in the standards.

**Engaging Scenario:** This is a culminating activity in which students are given a role, situation, challenge, audience, and a product or performance is specified. Each unit contains an example of an engaging scenario, but a teacher has the ability to substitute with the same intent in mind.

**Essential Questions:** Engaging, open-ended questions that teachers can use to engage students in the learning.

**Priority Standards:** What every student should know and be able to do. These were chosen because of their necessity for success in the next course, the state assessment, and life.

**Supporting Standards:** Additional standards that support the learning within the unit.

**Topic:** These are the main teaching points for the unit. Units can have anywhere from one topic to many, depending on the depth of the unit.

**Unit of Study:** Series of learning experiences/related assessments based on designated priority standards and related supporting standards.

**Unit Vocabulary:** Words students will encounter within the unit that are essential to understanding. Academic Cross-Curricular words (also called Tier 2 words) are those that can be found in multiple content areas, not just this one. Content/Domain Specific vocabulary words are those found specifically within the content.

**Symbols:**
- This symbol depicts an experience that can be used to assess a student’s 21st Century Skills using the rubric provided by the district.
- This symbol depicts an experience that integrates professional skills, the development of professional communication, and/or the use of professional mentorships in authentic classroom learning activities.