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RESERVE
EDUCATION

MICRO

ECONOMICS | ENTRANCE /
EXIT TICKETS

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Introduction

One of the steepest challenges in AP Microeconomics is that many students have not been exposed to economic concepts before in their previous coursework. This leads to students being fearful of new material or not truly mastering the ideas completely.

The best way to meet this challenge are to use both familiar materials to present new concepts and frequent familiar material they can relate to and constant informal assessments in low stress ways to check for real understanding. These entrance/exit tickets provide easy strategies for teachers that align directly with the AP curriculum and, subsequently, what they will need to demonstrate on the AP exam.

Entrance tickets should take students no more than two minutes of work to complete. A quick discussion led by the instructor serves as a good introduction to a new economic concept.

Exit tickets should also take less than five minutes at the end of class to reinforce big ideas presented throughout the class period. Emphasize to students that the questions on exit tickets are not formal assessments and are merely intended to give the instructor immediate feedback on that day's lesson. Many teachers encourage students to try their best by only counting the responses as participation or attendance grades.

It is imperative for instructors to use each exit ticket to encourage honest and open feedback from students on where they struggle with that day's lesson. Each exit ticket asks students to write one question about the curriculum content or a statement describing what they are still unsure about. The thermometer at the bottom of every slip is an easy way for teachers to gauge how confident students are with this material. Promote early and often that honestly providing feedback to an instructor during the unit will help avoid confusion as the content builds before the end of a section or course when it's too late. This information allows instructors as soon as the next class period to review/reteach any items that students have lingering struggles with before moving on. Teachers may track student and class confidence in the material with the data tracker spreadsheet at the end of this document.

Acknowledgments

Special thanks to the following people who offered support and feedback to this project:

Eva Johnston, Senior Economic Education Specialist
Federal Reserve Bank of St. Louis

Mark Bayles, Senior Economic Education Specialist (Retired)
Federal Reserve Bank of St. Louis

Elizabeth Healy, Director AP Curriculum, Instruction & Assessment
The College Board

The AP Microeconomics Students of Timberland High School in Wentzville, Missouri

Best of luck this semester to you and your students.

Mike Kaiman, Senior Economic Education Specialist
Federal Reserve Bank of St. Louis



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STUDENT

MICRO ECONOMICS

ENTRANCE /
EXIT TICKETS

Topic 1.1 Scarcity

Name_____

Entrance Ticket

1. Write a definition of what you think economists study.

2. List three things that you use in your life that are scarce.

Topic 1.1 Scarcity

Name_____

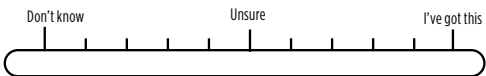
Exit Ticket

1. What are the four major factors of production?

2. When a business purchases a machine to make a product, that is considered what type of production factor?

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what we learned today.



Topic 1.2 Resource Allocation & Economic Systems

Name _____

Entrance Ticket

1. What type of economy do you think exists in the United States?

2. How can a government influence how scarce resources are used?

Topic 1.2 Resource Allocation & Economic Systems

Name _____

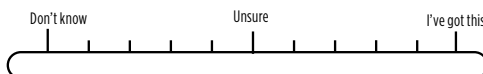
Exit Ticket

1. What is the major difference between a command economy and a market economy?

2. In a pure market economy, what two groups interact with each other in exchanging goods and services?

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 1.3 Production Possibilities Curve

Name _____

Entrance Ticket

1. Why do we as individuals (and the larger economy as well) have to make decisions over what we will consume/produce?

2. With scarce resources, the United States during World War II endured a “guns vs. butter” debate over economic production. What do you think this means?

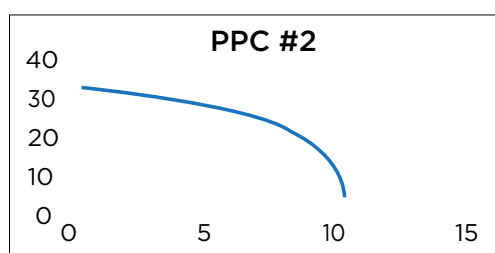
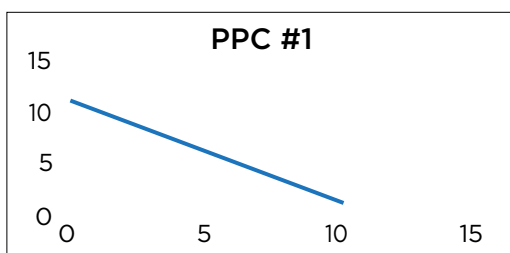
Topic 1.3 Production Possibilities Curve

Name _____

Exit Ticket

1. What is the definition of opportunity cost?

2. What is the explanation for the difference in shape between the two PPC curves below?



3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 1.4 Comparative Advantage and Trade

Name_____

Entrance Ticket

1. If Kristen has a lower opportunity cost in producing boomerangs over Megan, and Megan can produce harmonicas at a lower opportunity cost, how could both Kristen and Megan benefit if both want boomerangs and harmonicas?

2. Write what you believe the term “mutually beneficial” means to you.

Topic 1.4 Comparative Advantage and Trade

Name_____

Exit Ticket

1. Consider the following situation showing opportunity cost. Identify which party (if any) has a comparative advantage.

	Boomerangs	Harmonicas
Kristen	1	4
Megan	2	3

2. Should Megan and Kristen trade with each other? Explain why or why not.

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 1.5 Cost-Benefit Analysis

Name_____

Entrance Ticket

1. Stickers like the one shown below have been placed on music albums sold in the US since 1985. Describe what you believe “explicit content” to be.



2. Imagine you have two tests, one in English and one in Chemistry. The English test is going to be hard for you, but bombing it will drop your semester grade dramatically. The chemistry test should be easier, but it won’t impact your semester average as much. Describe your decision-making process in how you plan to study for both tests if you only have 4 hours to study the night before.

Topic 1.5 Cost-Benefit Analysis

Name_____

Exit Ticket

1. Explain the difference between explicit and implicit costs.

2. Consider a situation where your parents will pay you to clean the house by room. Using total cost benefit analysis, identify how many rooms you should clean.

Rooms	Total Cost / Number of Hours it Takes to Clean	Total Payment	Total Net Benefit
0	0	\$0	
1	2	\$5.00	
2	4	\$9.00	
3	6	\$14.00	
4	8	\$20.00	
5	12	\$22.00	

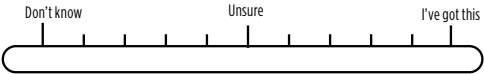
Topic 1.5 Cost-Benefit Analysis (cont.)

Name_____

Entrance Ticket

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 1.6 Marginal Analysis

Name _____

Entrance Ticket

1. Why isn't it a good idea to eat a full bag of potato chips in one sitting, even if you're hungry? As you eat potato chips, what happens to your total satisfaction?

2. Imagine in a game of football on a 3rd and 10 play, a quarterback makes a successful pass to gain 18 yards. After the play, a penalty of five yards is assessed. Would the coach be happy with the overall result of that play? Explain why or why not. What if the penalty was 10 yards?

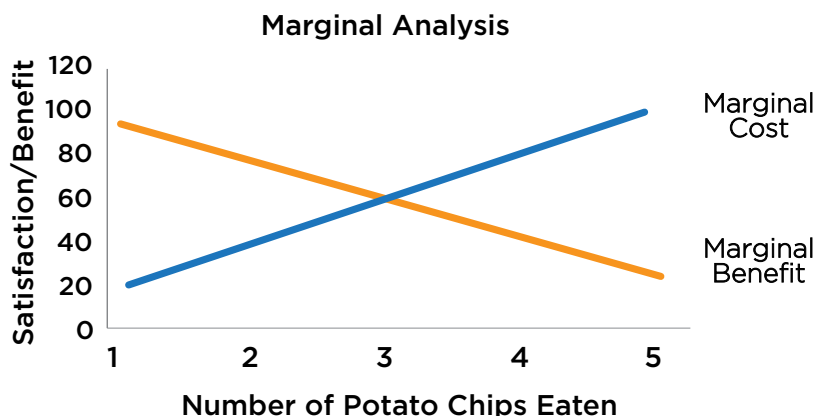
Topic 1.6 Marginal Analysis

Name _____

Exit Ticket

1. Define the concept of diminishing returns.

2. Consider the graph below. Explain using marginal analysis why eating three potato chips is the optimal quantity consumed.



Topic 1.6 Marginal Analysis (cont.)

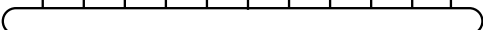
Name _____

Exit Ticket

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.

Don't know Unsure I've got this



Topic 2.1 Demand

Name _____

Entrance Ticket

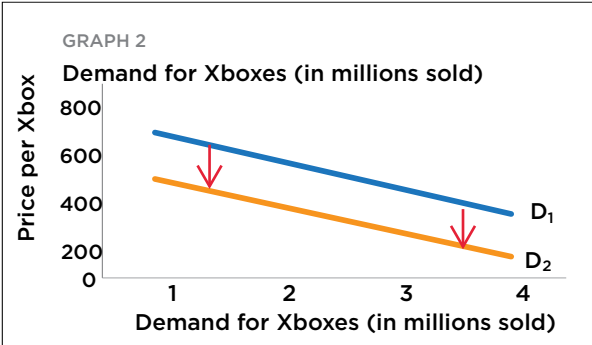
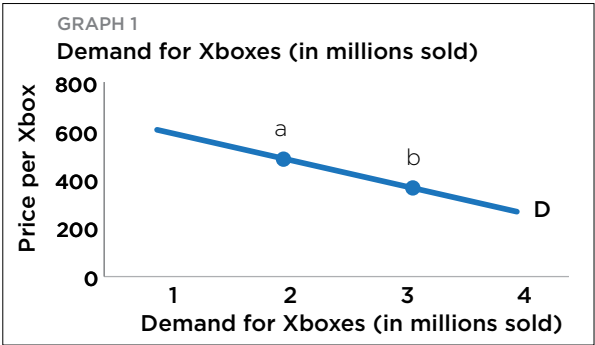
1. Say an Xbox originally costs \$400. Microsoft changes the price to \$500. What do you think will happen to the quantity of Xboxes sold?
- _____
- _____
- _____
2. Now say Sony releases a new PlayStation that has dramatically better games, graphics, and features. What do you think will happen to the quantity of Xboxes sold?
- _____
- _____
- _____

Topic 2.1 Demand

Name _____

Exit Ticket

1. Explain what is happening in this demand curve graph as we move from points A to B in graph 1. Why is there a shift in the demand curve for graph 2?



Topic 2.1 Demand (cont.)

Name _____

Exit Ticket

2. Are you still puzzled about anything we covered? Add one question/comment.

3. Fill in your level of confidence in understanding what you learned today.



Topic 2.2 Supply

Name_____

Entrance Ticket

1. Imagine running a lemonade stand and charging \$1.00 per glass. Several customers say after buying a drink that they would've paid \$5.00. With that feedback, circle what changes you would make (if any) to your business.

Price Charged for Lemonade

Amount of Lemonade Made

Decrease No Change Increase

Decrease No Change Increase

Topic 2.2 Supply

Name_____

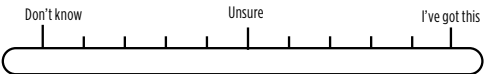
Exit Ticket

1. Explain one reason why a supply curve would SHIFT either to the left or right.

2. How does a change in price of that good or service affect the supply curve?

3. Are you still puzzled about anything we covered? Add one question/comment

4. Fill in your level of confidence in understanding what you learned today.



Topic 2.3 Price Elasticity of Demand

Name _____

Entrance Ticket

- 1. Identify a good or service that you MUST have and for which you are willing to pay almost any price.

- 2. Identify a good or service that you could easily give up if the price changed even slightly.

- 3. If you produced a good or service, why is it be a good idea to know how much your customers are willing to pay?

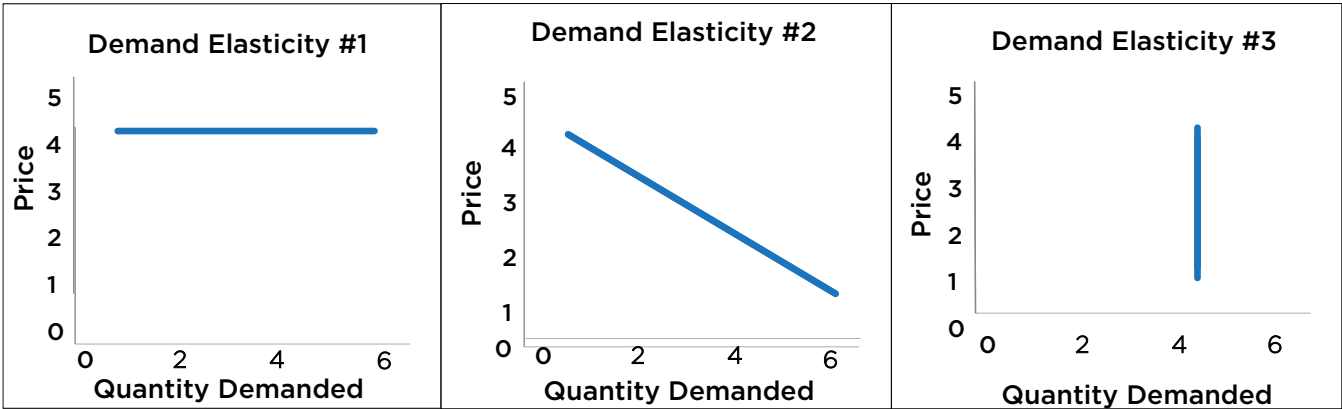
Topic 2.3 Price Elasticity of Demand

Name _____

Exit Ticket

- 1. Consider the three graphs below. If you were calculating price elasticity of demand, which good would be greater than 1, less than 1 or equal to 1?

< 1 > 1 = 1 < 1 > 1 = 1 < 1 > 1 = 1



Topic 2.3 Price Elasticity of Demand (cont.)

Name _____

Exit Ticket

2. If a producer either raises or lowers a price and it does not impact total revenue, which elasticity value is this?

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 2.4 Price Elasticity of Supply

Name _____

Entrance Ticket

- 1. If price elasticity of demand measures how sensitive consumers are to a price change, what does price elasticity of supply measure?

- 2. When calculating price elasticity of demand, the final answer is usually negative. If we apply the same formula to supply, why would our final answer be positive?

Topic 2.4 Price Elasticity of Supply

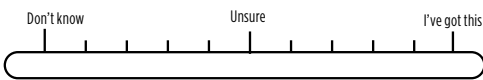
Name _____

Exit Ticket

- 1. The global price of olive oil increased from \$50 to \$75 a barrel. Consequently, olive oil producers that originally produced 80 million barrels per week increased their output to 120 million barrels to take advantage of the price increase. Describe how you would determine if the elasticity in this range is elastic, inelastic or unit elastic.

- 2. Are you still puzzled about anything we covered? Add one question/comment.

- 3. Fill in your level of confidence in understanding what you learned today.



Topic 2.5 Other Elasticities

Name _____

Entrance Ticket

- 1. How would you describe the relationship between peanut butter and jelly?

- 2. If you get a raise at work, would you buy Starbucks every day or continue to drink powdered instant coffee crystals (like Folgers) at home?

Topic 2.5 Other Elasticities

Name _____

Exit Ticket

- 1. Describe the difference between normal and inferior goods as they relate to income elasticity.

- 2. Laura’s Creamery makes vanilla foam for cold brew lattes. Starbucks drops the price of cold brew by 50%. Would you advise Laura to prepare to make more, less, or the same amount of cold foam? Be sure to use terms learned from this section to explain your answer.

- 3. Are you still puzzled about anything we covered? Add one question/comment.

- 4. Fill in your level of confidence in understanding what you learned today

Don't know

Unsure

I've got this

Entrance Ticket

Name _____

1. Imagine your favorite band is on tour and you are willing to spend \$100 on a ticket. When the presale begins (and you have the code,) tickets are only \$75. Do you purchase the \$75 ticket? If so, how much of a “deal” do you believe you’re receiving?

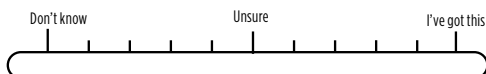
2. Now imagine that you have that \$75 ticket for the concert. One of your friends offers you \$500 for that ticket. The band is good...but they’re not *that good*...so you sell your ticket for \$500. If the face value of the ticket remains at \$75, how big of a “deal” did you receive by selling your ticket?

Topic 2.6 Equilibrium & Consumer/Producer Surplus

Name _____

Entrance Ticket

1. Draw a graph showing a market in equilibrium. In addition to labeling supply/demand, equilibrium price, and quantity produced on your graph, shade in consumer/producer surplus.
2. If a market is in equilibrium, describe how you would calculate consumer and producer surplus from the graph you drew above.
3. Are you still puzzled about anything we covered? Add one question/comment.
4. Fill in your level of confidence in understanding what you learned today.



Topic 2.7 Market Equilibrium

Name _____

Entrance Ticket

1. Describe what type of economic condition is going on in each of these photos below.



Costco Meat Section
March 2020



Costco Paper Goods
August 2020

Topic 2.7 Market Equilibrium

Name _____

1. Refer to your entrance ticket. Draw a graph showing what caused the shortage in the Costco meat section. Draw a separate graph showing what caused the surplus in toilet paper at Costco. Be sure to label all parts of your graph showing the change in quantity, price and shifting supply OR demand..

2. Are you still puzzled about anything we covered? Add one question/comment.

3. Fill in your level of confidence in understanding what you learned today.



Topic 2.8 Effects of Govt. Intervention in Markets

Name _____

Entrance Ticket

1. Would you be in favor of the government capping the price gas stations could charge for a gallon of gas at \$2.00? Circle your choice below.

Yes

No

2. Would you be in favor of the minimum wage being raised to \$20.00 an hour? Circle your choice below.

Yes

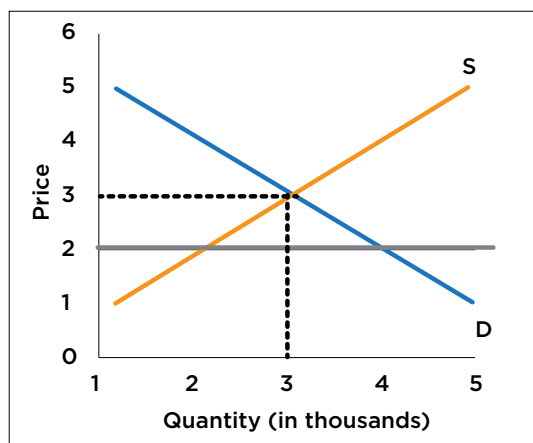
No

Topic 2.8 Effects of Govt. Intervention in Markets

Name _____

Exit Ticket

1. Identify what type of government intervention is illustrated in the graph below AND calculate the amount of shortage/surplus this intervention is causing. Briefly explain why this market is in disequilibrium.



2. Are you still puzzled about anything we covered? Add one question/comment.

3. Fill in your level of confidence in understanding what you learned today.



Topic 2.9 International Trade & Public Policy

Name _____

Entrance Ticket

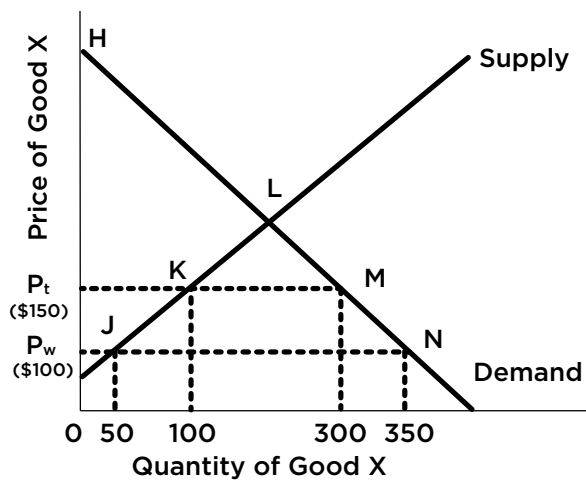
1. What would be the goal for a government to place trade barriers (tariffs) on imports of goods from foreign countries?

Topic 2.9 International Trade & Public Policy

Name _____

Exit Ticket

1. Consider the graph below. Shade in the area(s) of deadweight loss created by this tariff AND calculate how much tax revenue is generated. Assume that the original price with world trade (P_w) was \$100 and the new price after the tariff (P_t) is \$150.



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2. Are you still puzzled about anything we covered? Add one question/comment.

3. Fill in your level of confidence in understanding what you learned today.

Don't know Unsure I've got this

Topic 3.1 Production Function

Name _____

Entrance Ticket

1. List some of your short-term and long-term educational goals in the table below.

Short-Term Goals	Long-Term Goals

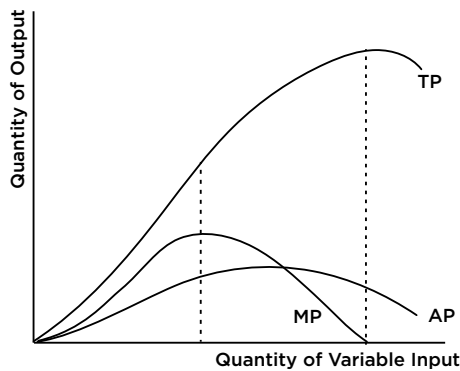
Topic 3.1 Production Function

Name _____

Exit Ticket

1. Describe the major difference between short run and long run production.

2. Consider the graph below. Describe why marginal production (MP) increases at first but then decreases with continued production.



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3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.

Don't know

Unsure

I've got this

Topic 3.2 Short-Run Production Costs

Name _____

Entrance Ticket

1. REVIEW! Fill in the table below with brief definitions of the three major types of production.

Total Production	
Average Production	
Marginal Production	

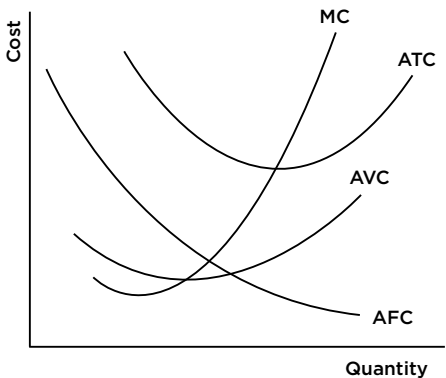
Topic 3.2 Short-Run Production Costs

Name _____

Exit Ticket

1. Refer to the graph below showing cost curves. Why does marginal cost (MC) and average fixed cost (AFC) initially decline and then increase?

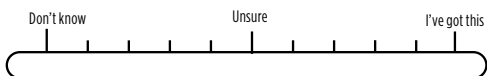
2. When drawing cost curves, it is important to remember what relationship between marginal cost (MC) and average variable cost (AVC) & average total cost (ATC)?



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3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 3.3 Long-Run Production Costs

Name _____

Entrance Ticket

1. REVIEW! What's the difference in a firm's production costs between the short run and long run?

2. What is the appeal of stores like Costco and Sam's Club for consumers?

Topic 3.3 Long-Run Production Costs

Name _____

Exit Ticket

1. Define economies of scale.

2. Draw a graph that shows five short-run average total cost curves labeling each one SRATC 1/2/3/4/5 illustrating both economies of scale and diseconomies of scale. Be sure to label your long run average total cost curve LRATC.

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 3.4 Types of Profit

Name _____

Exit Ticket

- 1. In 2022, Amazon reported \$514.0 billion in revenue and \$501.7 billion in costs. How much money did Amazon make/lose in that year?

- 2. Based on what you learned about the three types of production functions, write a definition of the following types of revenue.

Total Revenue	
Average Revenue	
Marginal Revenue	

Topic 3.4 Types of Profit

Name _____

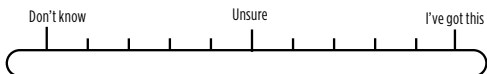
Exit Ticket

- 1. Mike goes into the popcorn business after quitting his job as a teacher, which paid him \$50,000. Total costs during the first year of his firm totaled \$150,000. If the total revenue during his first year of operation was \$175,000, what is Mike’s ECONOMIC profit?

- 2. Explain why an economic profit of zero is ideal for the firm.

- 3. Are you still puzzled about anything we covered? Add one question/comment.

- 4. Fill in your level of confidence in understanding what you learned today.



Topic 3.5 Profit Maximization

Name _____

Entrance Ticket

1. Eva is about to launch her business making nerdy econ laptop stickers. She knows how much her costs will be and has estimated the best price to charge. Which method of measuring costs and revenue would be the BEST method to determine the exact number of stickers Eva should produce: total cost/revenue, average cost/revenue, or marginal cost/revenue? Why?

Topic 3.5 Profit Maximization

Name _____

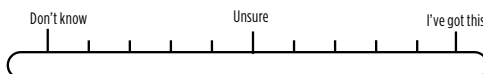
Exit Ticket

1. List the two rules for profit maximization that determine the amount a firm should produce AND how much the price should be.

2. Briefly explain WHY $MR=MC$.

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 3.6 Firms' Short- & Long-Run Decisions in Entering/Exiting a Market

Name _____

Entrance Ticket

- REVIEW! Draw a graph showing where a firm should produce a profit maximizing amount. Assume that marginal revenue is constant (and therefore perfectly horizontal.) Label the profit-maximized quantity produced Q on the X-axis and the optimal price P on the Y-axis.

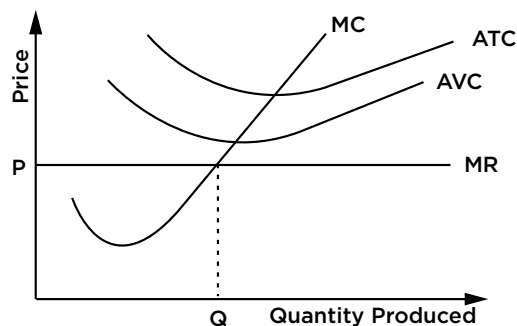
Topic 3.6 Firms' Short- & Long-Run Decisions in Entering/Exiting a Market

Name _____

Exit Ticket

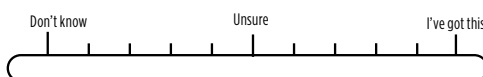
- Describe the rule when a firm should shut down in the short run.

- Consider the graph below. Should this firm shut down in the short run? Explain why or why not.



- Are you still puzzled about anything we covered? Add one question/comment.

- Fill in your level of confidence in understanding what you learned today.



Topic 3.7 Perfect Competition

Name _____

Entrance Ticket

1. Assume that anyone can make Squishmallow stuffed animals, and every firm making them is running an economic profit. Sean sees this and enters the market. What will happen to all other firms' economic profit if Sean's Squishmallows business opens?

2. Now assume that Sean's Squishmallows firm is operating at a loss below his average variable cost curve, and he exits the market. What will happen to all other firms' profit/losses if Sean leaves?

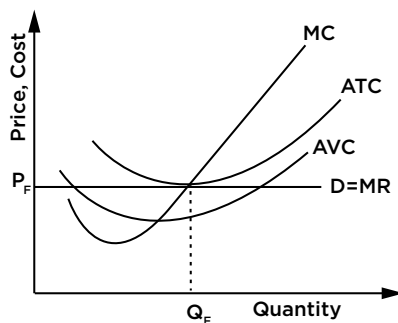
Topic 3.7 Perfect Competition

Name _____

Exit Ticket

1. Explain why MRDARP in perfect competition is perfectly horizontal.

2. Consider the perfectly competitive graph to be in the long run. Describe why this market is both productive and allocatively efficient.



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3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



**Topic 4.1 Intro to Imperfectly
Competitive Markets**

Name_____

Entrance Ticket

1. Think about your high school (or college) academic career. Were there any classes that were similar to each other in subject matter? Did you take any classes that taught material that was completely unique?

2. Have you taken any courses that required prerequisites? If so, what were they? Were those classes bigger or smaller in size compared to classes that had no prerequisites?

**Topic 4.1 Intro to Imperfectly
Competitive Markets**

Name_____

Exit Ticket

1. Fill in the table below by correctly identifying the type of market exists based on the description.

Market Description	Type of Market
Very many firms that have no price-setting power can enter/exit the market extremely easily. Both allocative & productive efficient.	
A few firms have limited price setting power due to significant barriers of entry/exit. Neither allocative nor productive efficient	
Many firms that produce a differentiated product but have some price setting power. Cannot run long-term economic profits.	
A single firm that is an absolute price maker. Could run long term economic profits.	

2. List any three potential barriers to entry into a market that would sustain an imperfect form of competition.

Topic 4.1 Intro to Imperfectly Competitive Markets (cont.)

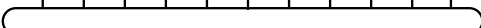
Name _____

Exit Ticket

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.

Don't know Unsure I've got this



Topic 4.2 Monopoly

Name _____

Entrance Ticket

1. Identify an example of a business you think is a monopoly.

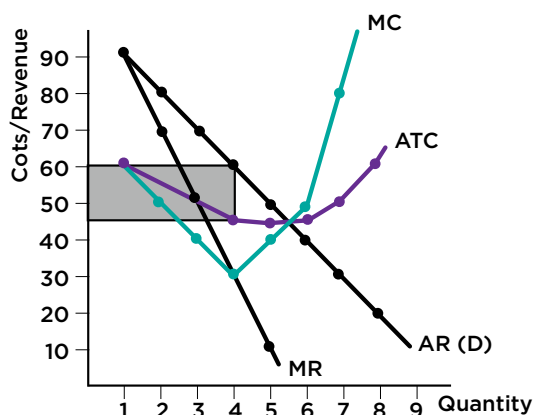
2. Can a monopoly charge as much as it wants for its good/service?

Topic 4.2 Monopoly

Name _____

Exit Ticket

1. Describe what is going on in the shaded area of the graph below.



2. In the previous graph, is this monopoly running an economic loss/profit or breaking even? Explain how you arrived at that conclusion.

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 4.3 Price Discrimination

Name _____

Entrance Ticket

- 1. Why do airlines charge business fliers more than vacationers for the same ticket?

- 2. Why does Spotify offer a student subscription for \$5/month when its individual subscription is \$10/month?

Topic 4.3 Price Discrimination

Name _____

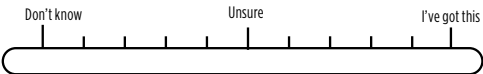
Exit Ticket

- 1. What is the monopolist’s ultimate goal if they can price-discriminate for each consumer?

- 2. If a monopoly could price-discriminate for every available consumer, what would happen to deadweight loss?

- 3. Are you still puzzled about anything we covered? Add one question/comment.

- 4. Fill in your level of confidence in understanding what you learned today.



Topic 4.4 Monopolistic Competition

Name _____

Entrance Ticket

1. How do clothing stores (H&M, American Eagle, Gap, etc.) differentiate themselves when they all sell similar items?

Topic 4.4 Monopolistic Competition

Name _____

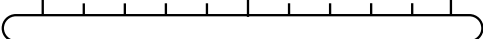
Entrance Ticket

1. Describe (or draw a graph) what a monopolistically competitive market looks like in any long-run situation. Be sure to include in your graph the marginal revenue, demand, marginal cost and average total costs curves as well as showing the equilibrium price (P_m) and quantity produced (Q_m).

2. Are you still puzzled about anything we covered? Add one question/comment.

3. Fill in your level of confidence in understanding what you learned today.

Don't know Unsure I've got this



Topic 4.5 Oligopoly & Game Theory

Name _____

Entrance Ticket

1. Identify a market that is dominated by just a handful of firms.

Topic 4.5 Oligopoly & Game Theory

Name _____

Exit Ticket

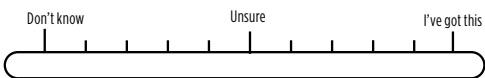
1. Keith and Andria cheated on their last econ test and they both scored 80%. The instructor offered them this deal: If either of them rats out the other, that person receives the full 80% while the other person receives a zero. If neither person rats out the other, they both receive 0%. If BOTH rat out the other, they both receive a 40%. Identify the dominant strategy (if any) for Keith and Andria.

		Andria	
		Confess	Don't Confess
Keith	Confess	40 / 40	80 / 0
	Don't Confess	0 / 80	0 / 0

2. Describe a Nash equilibrium in a game theory matrix.

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 5.1 Introduction to Factor Markets

Name _____

Entrance Ticket

1. Circle the correct choice. In product markets (like the one's we've been studying in this class,) consumers/households control the SUPPLY/DEMAND curve while firms control the SUPPLY/DEMAND curve.
2. Write a simple definition of the word "derivative."

Topic 5.1 Introduction to Factor Markets

Name _____

Exit Ticket

1. Explain why a firm would want to hire laborers where marginal revenue of product (MRP) intersects with marginal revenue cost (MRC).
2. Draw a graph showing the MRP curve and what happens to the quantity of labor if wages decrease. Label the decrease in wages from W_1 to W_2 and the change in quantity of labor from Q_1 to Q_2 .

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 5.2 Changes in Factor Supply & Demand Name_____

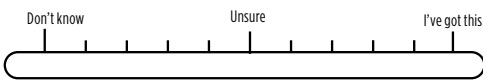
Entrance Ticket

1. REVIEW! True or False: changes in price (or wage rates for factor markets) will shift the supply and demand curve.
- _____
- _____
2. Where would demand for pizza workers be needed more—in a college town or a retirement community?
- _____
- _____
- _____

Topic 5.2 Changes in Factor Supply & Demand Name_____

Exit Ticket

1. Assume the federal government raises the retirement age to collect Social Security from 65 to 70. How will factor markets shift because of this change?
- _____
- _____
- _____
2. Between February and April, a national tax preparation service company hires 70,000 temporary employees. What is happening in the factor market supply and demand model. What will happen to wages with this change?
- _____
- _____
- _____
3. Are you still puzzled about anything we covered? Add one question/comment.
- _____
- _____
- _____
4. Fill in your level of confidence in understanding what you learned today.



Topic 5.3 Profit Maximizing in Perfectly Competitive Factor Markets

Name _____

Entrance Ticket

1. REVIEW! Why is price and marginal revenue perfectly elastic in product markets?

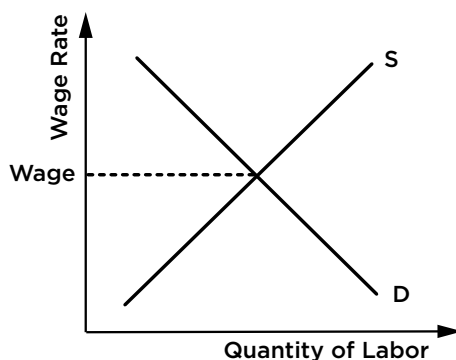
2. What is the formula to determine marginal revenue product (MRP) and marginal revenue cost (MRC)?

Topic 5.3 Profit Maximizing in Perfectly Competitive Factor Markets

Name _____

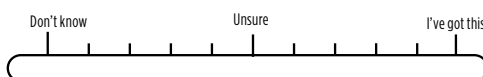
Exit Ticket

1. Consider the overall labor market supply/demand graph below. Draw a graph showing how many laborers (L1) a firm would hire in a perfectly competitive market and the wage (W1). Be sure to label the graph completely, showing wage rate and quantity of labor on the correct axis and labeling equilibrium W1 and L1.



2. Are you still puzzled about anything we covered? Add one question/comment.

3. Fill in your level of confidence in understanding what you learned today.



Topic 5.4 Monopsonistic Markets

Name _____

Entrance Ticket

1. What is always the rule for profit maximization of hiring labor regardless of the type of market?

Topic 5.4 Monopsonistic Markets

Name _____

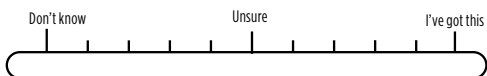
Exit Ticket

1. Why is a monopsony’s labor supply curve upward sloping instead of perfectly elastic?

2. Why does the MRC curve for a monopsony rise above its labor supply curve?

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.

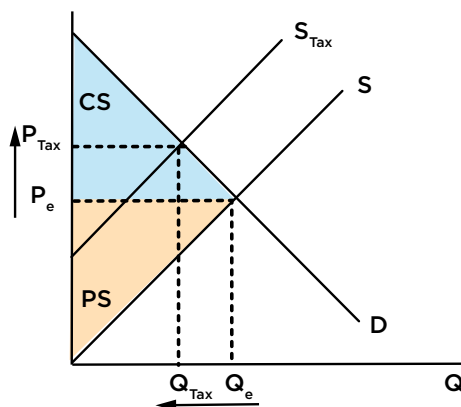


Topic 6.1 Socially Efficient & Inefficient Market Outcomes

Name _____

Entrance Ticket

1. REVIEW! What type of market inefficiency is shown in the graph below?



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2. REVIEW! When there is any type of inefficiency, the area (usually a triangle) on a graph where market exchanges should be taking place but are not is referred to as:

Topic 6.1 Socially Efficient & Inefficient

Name _____

Market Outcomes

Exit Ticket

1. Draw a graph that shows a perfectly competitive market with a socially efficient outcome. Be sure to label consumer surplus (CS), producer surplus (PS), marginal private benefit (MPB), marginal social benefit (MSB), marginal private cost (MPC) and marginal social cost (MSC).



Topic 6.1 Socially Efficient & Inefficient Market Outcomes (cont.)

Name _____

Exit Ticket

2. Explain how government subsidies could reduce/eliminate deadweight loss in a monopoly market.

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



Topic 6.2 Externalities

Name _____

Entrance Ticket

- Who is responsible for the damage in these pictures?



Photo Courtesy Library of Congress

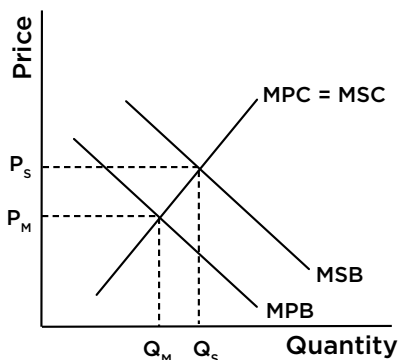


Topic 6.2 Externalities

Name _____

Exit Ticket

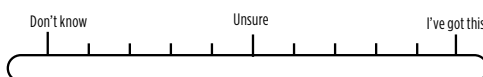
- What type of externalityexternality is shown in this graph? How might the market move to internalize the externality and reduce deadweight loss?



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- Are you still puzzled about anything we covered? Add one question/comment.

- Fill in your level of confidence in understanding what you learned today.



Topic 6.3 Public & Private Goods

Name _____

Entrance Ticket

1. Why does the government, and not the private sector, provide military protection for the nation?

Topic 6.3 Public & Private Goods

Name _____

Exit Ticket

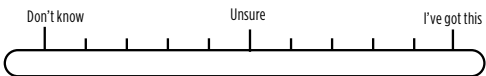
1. Describe how free riders force the government to provide certain goods and services.

2. Define the two factors that are required for pure public goods.

3. Provide an example of “the tragedy of the commons.”

4. Are you still puzzled about anything we covered? Add one question/comment.

5. Fill in your level of confidence in understanding what you learned today.



**Topic 6.4 Government Intervention in
Different Market Structures**

Name_____

Entrance Ticket

1. Provide one example of government intervention that is intended to benefit consumers.

2. Provide one example of government intervention that is intended to benefit producers.

**Topic 6.4 Government Intervention in
Different Market Structures**

Name_____

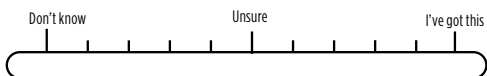
Exit Ticket

1. Describe the difference between a lump-sum and per-unit tax on a firm's production choices.

2. What is the only government intervention that will allow a natural monopoly to produce the socially optimal amount without operating at a loss?

3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today



Topic 6.5 Inequality

Name _____

Entrance Ticket

1. List two types of taxes consumers pay.

2. Why do governments tax producers and consumers?

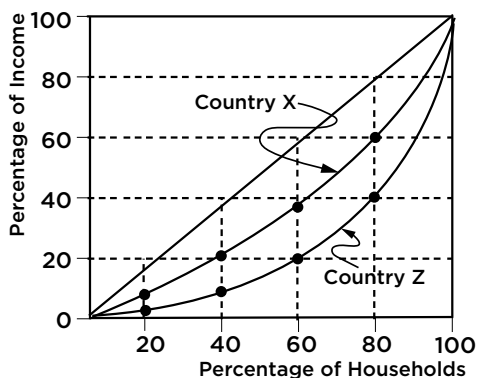
Topic 6.5 Inequality

Name _____

Exit Ticket

1. Briefly explain how a progressive income tax is designed.

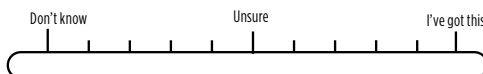
2. Consider the Lorenz curve below. Which country has a more equal distribution of income?



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3. Are you still puzzled about anything we covered? Add one question/comment.

4. Fill in your level of confidence in understanding what you learned today.



TEACHER

MICRO ECONOMICS | RESOURCES

Topic 1.1 Scarcity

Entrance Ticket

1. Write a definition of what you think economists study.

Answers will vary but after collecting tickets instruct students that the general definition of economics is that it is the study of scarcity and choices made regarding balancing scarce resources and unlimited wants.

2. List three things that you use in your life that are scarce.

Answers will vary.

Topic 1.1 Scarcity

Exit Ticket

1. What are the four major factors of production?

land

labor

capital

entrepreneurship

2. When a business purchases a machine to make a product, that is considered what type of production factor?

capital.



Topic 1.2 Resource Allocation & Economic Systems

Entrance Ticket

1. What type of economy do you think exists in the United States?

Answers will vary. After discussing this with students, tell them that the US maintains a mixed economy.

2. How can a government influence how scarce resources are used?

Answers may vary. Students may say that government can control purchases through taxes. Governments may also restrict access to natural resources through laws and regulations.

Topic 1.2 Resource Allocation & Economic Systems

Exit Ticket

1. What is the major difference between a command economy and a market economy?

In a command economy, the government owns/controls the means of production. In a pure market economy, individuals and private ownership control the means of production.

2. In a pure market economy, what two groups interact with each other in exchanging goods and services?

firms households/consumers



Topic 1.3 Production Possibilities Curve

Entrance Ticket

1. Why do we as individuals (and the larger economy as well) have to make decisions over what we will consume/produce?

Answers will vary but generally students should respond that scarce resources cannot fulfill all our wants at the same time.

2. With scarce resources, the United States during World War II endured a “guns vs. butter” debate over economic production. What do you think this means?

Answers will vary but guide students into understanding that decisions must be made in what type of material—in this case consumer or military goods—needs to be produced at any given time.

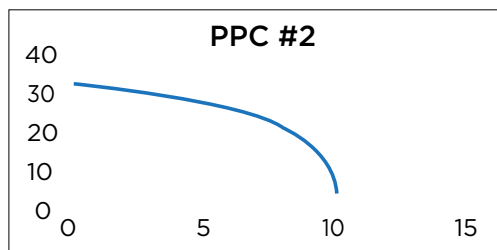
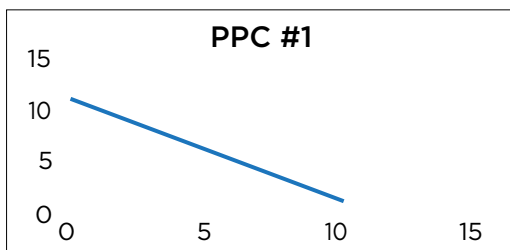
Topic 1.3 Production Possibilities Curve

Exit Ticket

1. What is the definition of opportunity cost?

It is the value of the next-best alternative when a decision is made; it's what is given up.

2. What is the explanation for the difference in shape between the two PPC curves below?



Students need to describe that PPC #1 has constant opportunity costs, while PPC #2 has increasing opportunity costs



Topic 1.4 Comparative Advantage and Trade

Entrance Ticket

1. If Kristen has a lower opportunity cost in producing boomerangs over Megan, and Megan can produce harmonicas at a lower opportunity cost, how could both Kristen and Megan benefit if both want boomerangs and harmonicas?

Answers will vary but most students should see that Kristen and Megan can both benefit by trading with each other as they will have both items.

2. Write what you believe the term “mutually beneficial” means to you.

Answers will vary but the textbook definition of mutually beneficial trade usually is the cost to a party must fall between the opportunity costs of producers involved in the trade.

Topic 1.4 Comparative Advantage and Trade

Exit Ticket

1. Consider the following situation showing how many items Kristen and Megan can produce in one day. Identify which party (if any) has a comparative advantage.

	Boomerangs	Harmonicas
Kristen	1 (1 Boomerang costs 4 Harmonicas)	4 (1 Harmonica costs 1/4 Boomerang)
Megan	2 (1 Boomerang cost 1.5 Harmonicas)	3 (1 Harmonica cost 2/3 Boomerangs)

Megan has a comparative advantage in producing boomerangs since her opportunity cost to produce harmonicas is higher ($1.5 < 4$), Kristen has a comparative advantage in producing harmonicas for the exact same reason ($1/4 < 2/3$).

2. Should Megan and Kristen trade with each other? Explain why or why not.

Yes, they should because with their comparative advantages both would specialize in making either boomerangs or harmonicas AND still gain with the addition of the other party producing their item.

Topic 1.5 Cost-Benefit Analysis

Entrance Ticket

1. Stickers like the one shown below have been placed on music albums sold in the US since 1985. Describe what you believe “explicit content” to be.



Answers will vary, but most students will respond that explicit refers to something direct, dirty, or without innuendo.

2. Imagine you have two tests, one in English and one in Chemistry. The English test is going to be hard for you, but bombing it will drop your semester grade dramatically. The chemistry test should be easier, but it won't impact your semester average as much. Describe your decision-making process in how you plan to study for both tests if you only have 4 hours to study the night before.

Answers will vary greatly, but in discussing with the class focus on rational decisions students make, like using all four hours of study time, weighing the risks of each grade, and how hard each exam may be. Close the discussion before starting instruction by telling students that in economics, rational decisions weigh costs against benefits, and that the optimal choice is to maximize the difference between total cost and total benefit.

Topic 1.5 Cost-Benefit Analysis

Exit Ticket

1. Explain the difference between explicit and implicit costs.

Answers will vary, but explicit costs are direct expenses (usually involving money,) while implicit costs are usually measured by determining what kind of benefit is given up by making a decision.

2. Consider a situation where your parents will pay you to clean the house by room. Using total cost benefit analysis, identify how many rooms you should clean.

Rooms	Total Cost / Number of Hours it Takes to Clean	Total Payment	Total Net Benefit
0	0	\$0	\$0
1	2	\$5.00	\$3.00 (\$5 - 2 hrs)
2	4	\$9.00	\$5.00 (\$9 - 4 hrs)
3	6	\$14.00	\$8.00 (\$14 - 6 hrs)
4	8	\$20.00	\$12.00 (\$20 - 8 hrs)
5	12	\$22.00	\$10.00 (\$22 - 12 hrs)

The optimal choice would be to clean 4 rooms for \$20.00, since the total net benefit increases from cleaning rooms 0 – 4. Cleaning the fifth room, while adding two more dollars to the total payment, sees the first decrease in net benefit. Calculate by taking total payment – the cost (which in this case is the number of hours it takes to clean).



Topic 1.6 Marginal Analysis

Entrance Ticket

1. Why isn't it a good idea to eat a full bag of potato chips in one sitting, even if you're hungry?
As you eat potato chips, what happens to your total satisfaction?

Answers will vary, but students should respond that the more they eat, the less satisfied they are with each additional potato chip. While the total satisfaction continues to increase, it isn't as satisfying as that first chip. Eventually, you might get to a point where one more potato chip might make you sick. Tell students that the concept of marginal analysis looks at incremental increases of consumer/producers behavior instead of focusing on the total like originally, we did with cost/benefit analysis.

2. Imagine in a game of football on a 3rd and 10 play, a quarterback makes a successful pass to gain 18 yards. After the play, a penalty of five yards is assessed. Would the coach be happy with the overall result of that play? Explain why or why not. What if the penalty was 10 yards?

Most students should respond by saying the coach is happy because even with the penalty, the team made a first down. Dig deeper with the class and tell them that in this case the marginal cost of the five-yard penalty and takes away some of the marginal benefit of the original eighteen-yard pass, it is still thirteen more yards than the overall net benefit of the play which keeps the drive alive. If the penalty was 10 yards the marginal cost is greater than the marginal benefit and the team will be forced to punt on 4th and 2...probably making the coach terribly upset at the player who just cost the team (and the game...)

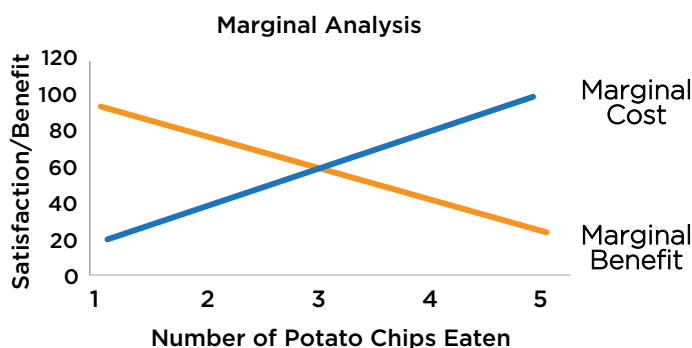
Topic 1.6 Marginal Analysis

Exit Ticket

1. Define the concept of diminishing returns.

Answers may slightly vary, but a good description would be when marginal utility becomes smaller as a person consumes more units of a product. As someone consumes additional units of a product, the marginal utility derived from each additional unit declines.

2. Consider the graph below. Explain using marginal analysis why eating three potato chips is the optimal quantity consumed.



Students should explain that eating 3 potato chips is the optimal amount consumed, as that is the point where marginal benefit and marginal costs intersect.

Topic 2.1 Demand

Entrance Ticket

1. Say an Xbox originally costs \$400. Microsoft changes the price to \$500. What do you think will happen to the quantity of Xboxes sold?

Students should respond that with the increase of price fewer people will want to buy Xboxes.

2. Now say Sony releases a new PlayStation that has dramatically better games, graphics, and features. What do you think will happen to the quantity of Xboxes sold?

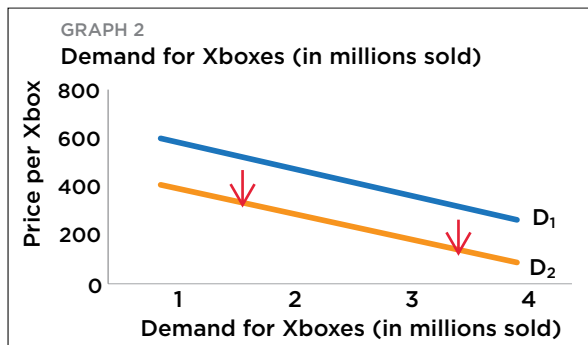
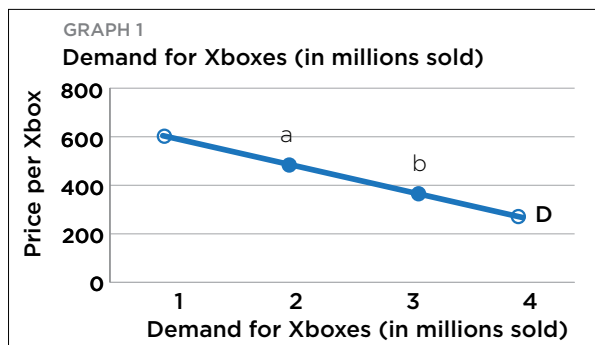
Students should respond that more people will start buying PlayStations and fewer people will want Xboxes.

Before starting the lesson make it clear to the class that even though the outcome is the same and that there is a reduction in demand for Xboxes in these two scenarios, the causes for each type of change are different.

Topic 2.1 Demand

Exit Ticket

1. Explain what is happening in this demand curve graph as we move from points A to B in graph 1. Why is there a shift in the demand curve for graph 2?



In short, students should describe that only a change in price can result in a movement ALONG an existing demand curve as show in graph 1. This is known as a change in demand. Graph 2 shows a change in the overall demand curve due to a determinant other than price such as substitute goods or a change in consumer tastes.



Topic 2.2 Supply

Entrance Ticket

1. Imagine running a lemonade stand and charging \$1.00 per glass. Several customers say after buying a drink that they would've paid \$5.00. With that feedback, circle what changes you would make (if any) to your business.

Price Charged for Lemonade

Decrease

No Change

Increase

Amount of Lemonade Made

Decrease

No Change

Increase

Most students should easily mark that they would increase the price they charge for lemonade. Some students might argue that they should not increase the amount of lemonade they make but discuss with them that if you as a supplier can charge a higher price for the product, you have an incentive to produce more as well.

Topic 2.2 Supply

Exit Ticket

1. Explain one reason why a supply curve would SHIFT either to the left or right.

Determinants of supply can cause a shift to the left or the right. Students should respond with one of the following determinant changes: input prices/technology/taxes-subsidies / prices of other goods/producer expectations/number of suppliers.

2. How does a change in price of that good or service affect the supply curve?

Students should respond that the overall curve does not shift in any direction, but the price will move along the existing curve.



Topic 2.3 Price Elasticity of Demand

Entrance Ticket

1. Identify a good or service that you MUST have and for which you are willing to pay almost any price.
2. Identify a good or service that you could easily give up if the price changed even slightly.
3. If you produced a good or service, why is it be a good idea to know how much your customers are willing to pay?

List all student answers for the first two prompts on the board and see if there are any commonalities in the list created. Students might suggest that absolute necessities are worth paying for as opposed to conveniences. Others might offer that the existing price level or the amount of change would affect their decisions. Pivot the discussion away from consumers and ask if they think producers might like to know their customers' behavior. Conclude by saying this concept is the very reason for price elasticity of demand.

Topic 2.3 Price Elasticity of Demand

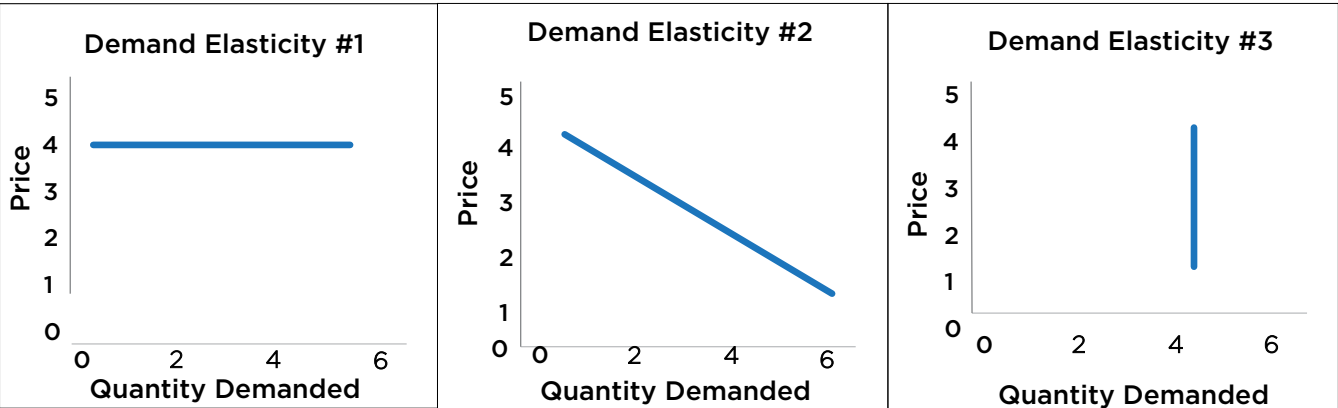
Exit Ticket

1. Consider the three graphs below. If you were calculating price elasticity of demand, which good would be greater than 1, less than 1 or equal to 1?

< 1 **> 1** = 1

< 1 > 1 **= 1**

< 1 > 1 = 1



2. If a producer either raises or lowers a price and it does not impact total revenue, which elasticity value is this?

That the good/service in question is unit elastic.

Topic 2.4 Price Elasticity of Supply

Entrance Ticket

1. If price elasticity of demand measures how sensitive consumers are to a price change, what does price elasticity of supply measure?

Students should respond that price elasticity measures how sensitive producers are to changes in the price for a good or service.

2. When calculating price elasticity of demand, the final answer is usually negative. If we apply the same formula to supply, why would our final answer be positive?

While some students may just say “it’s the opposite of demand,” discuss with the class that a positive elasticity derives from the law of supply where more is supplied as price increases.

Topic 2.4 Price Elasticity of Supply

Exit Ticket

1. The global price of olive oil increased from \$50 to \$75 a barrel. Consequently, olive oil producers that originally produced 80 million barrels per week increased their output to 120 million barrels to take advantage of the price increase. Describe how you would determine if the elasticity in this range is elastic, inelastic or unit elastic.

Students should calculate (or describe the formula) where the percent change in production is 1.5 ($120 \text{ mil} / 80 \text{ mil} = 1.5$) and the percent change of price is 1.5 ($\$75/\$50=1.5$), which means the elasticity is 1 and, therefore, unit elastic.



Topic 2.5 Other Elasticities

Entrance Ticket

1. How would you describe the relationship between peanut butter and jelly?

Answers will vary. Discuss with students that these two products are complementary goods because they usually go with each other. Introduce the concept of complementary goods and, if possible, substitute goods as they will be an important part of measuring cross price of elasticity demand.

2. If you get a raise at work, would you buy Starbucks every day or continue to drink powdered instant coffee crystals (like Folgers) at home?

Answers will vary, but most students will argue in favor of daily Starbucks runs because they can afford it with extra income. Explain to the class that Starbucks is a normal good, which means the more income people have, the more demand there will be for this product. Folgers is an inferior good, which means there is an INVERSE relationship between income and demand for this bare-bones good. Instruct the class this is an important part of income elasticity.

Topic 2.5 Other Elasticities

Exit Ticket

1. Describe the difference between normal and inferior goods as they relate to income elasticity.

Answers will vary. When calculating using income elasticity of demand a good is normal if there is a positive relationship meaning less than one. A good is inferior if the calculation produces a negative figure.

2. Laura's Creamery makes vanilla foam for cold brew lattes. Starbucks drops the price of cold brew by 50%. Would you advise Laura to prepare to make more, less, or the same amount of cold foam? Be sure to use terms learned from this section to explain your answer.

Students should respond that since cold foam is a normal good, there will be a positive correlation between foam and lower prices of coffee due to the cross price of elasticity concept they learned in this section. Therefore, Laura should make more vanilla foam.



Topic 2.6 Equilibrium & Consumer/Producer Surplus

Entrance Ticket

1. Imagine your favorite band is on tour and you are willing to spend \$100 on a ticket. When the presale begins (and you have the code,) tickets are only \$75. Do you purchase the \$75 ticket? If so, how much of a “deal” do you believe you’re receiving?

Students should respond that while they were willing to pay \$100, since face value tickets are \$75 their “deal” should be \$25.

2. Now imagine that you have that \$75 ticket for the concert. One of your friends offers you \$500 for that ticket. The band is good...but they’re not **that good**...so you sell your ticket for \$500. If the face value of the ticket remains at \$75, how big of a “deal” did you receive by selling your ticket?

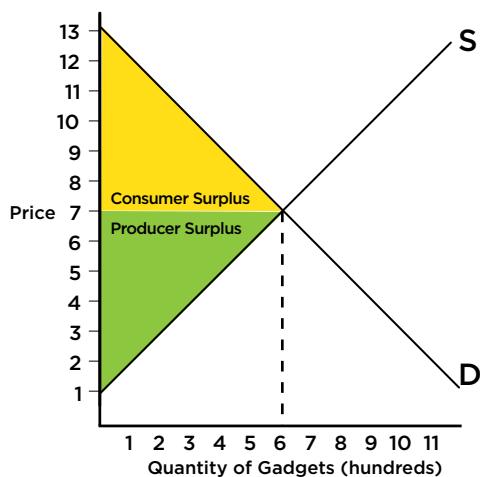
Students should answer that since the market price is \$75 but someone is willing to give them \$500, their benefit is \$425. Discuss with students these two situations are the fundamental concepts behind consumer surplus and producer surplus. In a free market, there will always be buyers willing to pay higher than market price and producers willing to sell below market price. Without interference, the entire market will accommodate all buyers and sellers.

Topic 2.6 Equilibrium & Consumer/Producer Surplus

Entrance Ticket

1. Draw a graph showing a market in equilibrium. In addition to labeling supply/demand, equilibrium price, and quantity produced on your graph, shade in consumer/producer surplus.

Students should produce a graph that looks like the one below.



2. If a market is in equilibrium, describe how you would calculate consumer and producer surplus from the graph you drew above.

Students should describe that they would calculate the area of the triangle ($1/2 \text{ base} \times \text{height}$) for both consumer and producer surplus.



Topic 2.7 Market Equilibrium

Entrance Ticket

- Describe what type of economic condition is going on in each of these photos below.



Costco Meat Section
March 2020



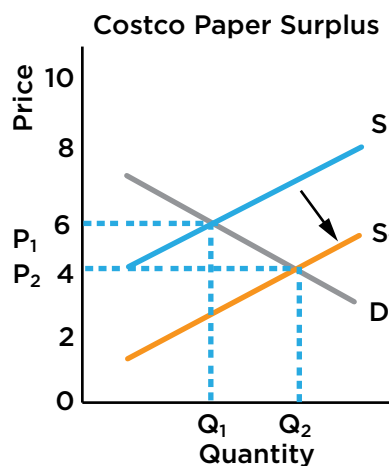
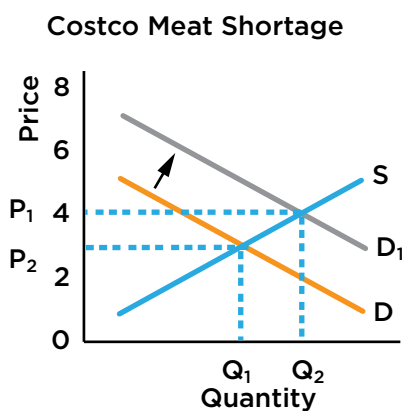
Costco Paper Goods
August 2020

Answers will vary but students should describe that the Costco meat section is showing a shortage and the paper goods section is showing a surplus both from impacts of the COVID pandemic of 2020. Introduce the rest of the lesson by telling the class that there are different reasons caused by supply and demand shifts that explain these two scenes.

Topic 2.7 Market Equilibrium

Exit Ticket

- Refer to your entrance ticket. Draw a graph showing what caused the shortage in the Costco meat section. Draw a separate graph showing what caused the surplus in toilet paper at Costco. Be sure to label all parts of your graph showing the change in quantity, price and shifting supply OR demand..



Students should draw graphs like the ones shown above.



Topic 2.8 Effects of Govt. Intervention in Markets

Entrance Ticket

1. Would you be in favor of the government capping the price gas stations could charge for a gallon of gas at \$2.00? Circle your choice below.

Yes

No

2. Would you be in favor of the minimum wage being raised to \$20.00 an hour? Circle your choice below.

Yes

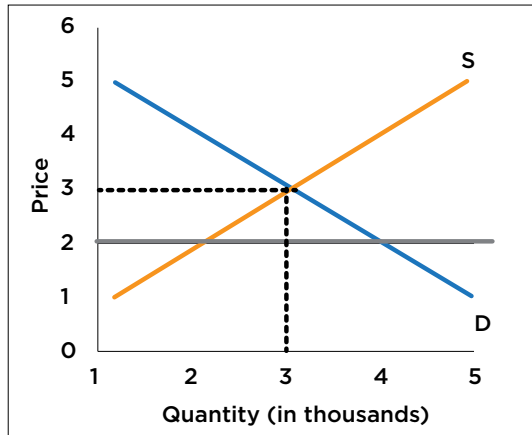
No

Most students will probably be in favor of both a price ceiling for gas and a price floor for minimum wage. Discuss with them that because of these interventions, the disequilibrium will create winners AND losers. It's easy to identify the winners, but with shortages and surpluses now created, tell students that as a result, either consumer or producer surplus will no longer be equal.

Topic 2.8 Effects of Govt. Intervention in Markets

Exit Ticket

1. Identify what type of government intervention is illustrated in the graph below AND calculate the amount of shortage/surplus this intervention is causing. Briefly explain why this market is in disequilibrium.



In this graph a price ceiling of \$2.00 is implemented, creating a shortage of 2000 units. Students should identify that with the ceiling, consumers are demanding 4000 units, but producers will only produce 2000.



Topic 2.9 International Trade & Public Policy

Entrance Ticket

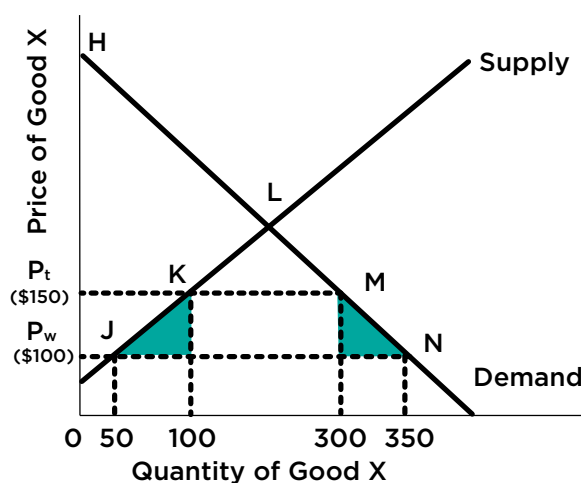
1. What would be the goal for a government to place trade barriers (tariffs) on imports of goods from foreign countries?

Answers will vary from generating revenue, through taxation of imports, to blocking international competition in a market. Remind students that trade barriers will disrupt the free market and cause disequilibrium.

Topic 2.9 International Trade & Public Policy

Exit Ticket

1. Consider the graph below. Shade in the area(s) of deadweight loss created by this tariff AND calculate how much tax revenue is generated. Assume that the original price with world trade (P_w) was \$100 and the new price after the tariff (P_t) is \$150.



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Students should shade in the two triangles as shown above to identify deadweight loss with this tariff. The tax revenue generated by the tariff is \$10,000 (the area of the rectangle between 300 units demanded and 100 supplied, multiplied by the \$50 difference between P_t and P_w .)

Topic 3.1 Production Function

Entrance Ticket

1. List some of your short-term and long-term educational goals in the table below.

Short-Term Goals	Long-Term Goals
------------------	-----------------

List all student responses on the board. Most students will say that in the short term they want to keep a 3.0 GPA, have perfect attendance, etc., while in the long-term students respond with bigger picture ambitions such as “go to college,” “get a degree,” “start a high paying career,” or “get out of their hometown.” Discuss with the class that in the short term most goals are fixed due to certain constraints like their class schedule, family obligations, etc., while in the long term there are fewer (if any) limitations on what they hope to achieve. Instruct the class this is a major factor firms consider when planning their short-term and long-term production future.

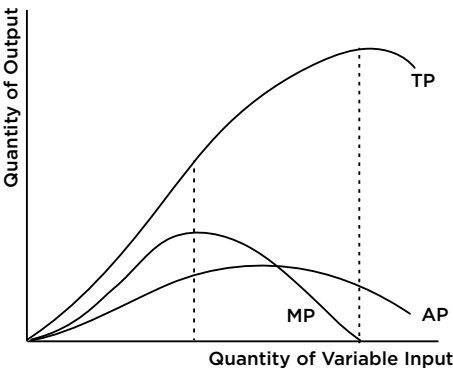
Topic 3.1 Production Function

Exit Ticket

1. Describe the major difference between short run and long run production.

Answers may vary, but students should describe that only variable inputs can be changed in the short run, but all variables (including fixed costs) may be changed in the long run.

2. Consider the graph below. Describe why marginal production (MP) increases at first but then decreases with continued production.



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At first, marginal product (MPP) increases due to specialization of labor but peaks and begins to decline due to the diminishing returns. (NOTE: Remind students that even with MPP declining, total production continues to increase.)

Topic 3.2 Short-Run Production Costs

Entrance Ticket

1. REVIEW! Fill in the table below with brief definitions of the three major types of production.

Total Production	<i>Measures the total product produced</i>
Average Production	<i>Measures the total product produced divided by variable input</i>
Marginal Production	<i>Measures change (Δ) in total product divided by change (Δ) in variable input</i>

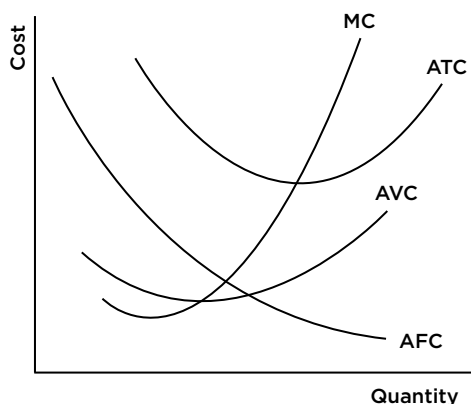
Topic 3.2 Short-Run Production Costs

Exit Ticket

1. Refer to the graph below showing cost curves. Why does marginal cost (MC) and average fixed cost (AFC) initially decline and then increase?

Both AVC and MC initially decline due to specialization of labor but increase due to diminishing returns.

2. When drawing cost curves, it is important to remember what relationship between marginal cost (MC) and average variable cost (AVC) & average total cost (ATC)?



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Marginal cost (MC) crosses average variable cost (AVC) and average total cost (ATC) at the minimum of each respective cost curve. (NOTE: This is because when MC meets AVC, both quantity outputs are equal and average cost does not change at this quantity produced.)



Topic 3.3 Long-Run Production Costs

Entrance Ticket

1. REVIEW! What's the difference in a firm's production costs between the short run and long run?

In the short run, a firm's fixed costs cannot be changed, while in the long run all costs become variable.

2. What is the appeal of stores like Costco and Sam's Club for consumers?

Answers will vary, but students might answer that while no one needs eight tubes of toothpaste at any one time, purchasing items in bulk means the costs per item are reduced. Tell students this same idea applies for firms' production and is called economies of scale.

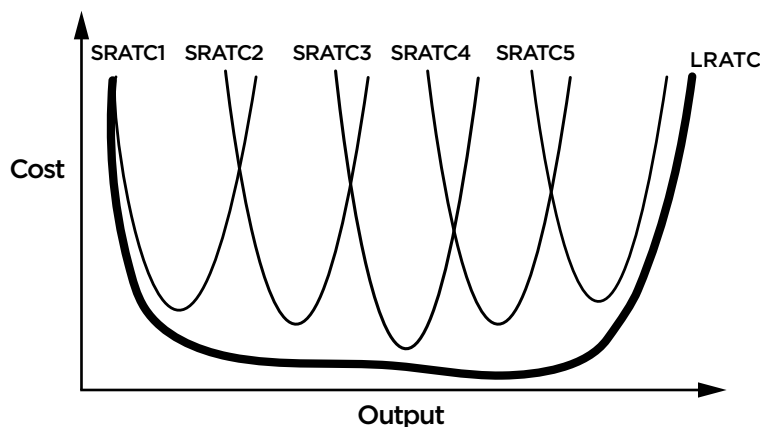
Topic 3.3 Long-Run Production Costs

Exit Ticket

1. Define economies of scale.

Economies of scale occur when a firm's per-unit production costs are reduced as output increases.

2. Draw a graph that shows five short-run average total cost curves labeling each once SRATC 1/2/3/4/5 illustrating both economies of scale and diseconomies of scale. Be sure to label your long run average total cost curve LRATC.



Topic 3.4 Types of Profit

Exit Ticket

1. In 2022, Amazon reported \$514.0 billion in revenue and \$501.7 billion in costs. How much money did Amazon make/lose in that year?

Students should answer that Amazon made (profit) \$12.3 billion in 2022. Instruct the class that this most common version of profit/loss is known as accounting profit. Economists calculate much more into economic profit/loss, which is the theme in this part of the curriculum.

2. Based on what you learned about the three types of production functions, write a definition of the following types of revenue.

Total Revenue	<i>Total income the firm receives from selling all outputs at one price ($P \times Q$)</i>
Average Revenue	<i>Revenue the firm receives from selling one unit at a given level of output (TR / Q)</i>
Marginal Revenue	<i>Measures change (Δ) total revenue from selling one more unit of output ($\Delta TR / \Delta Q$)</i>

Topic 3.4 Types of Profit

Exit Ticket

1. Mike goes into the popcorn business after quitting his job as a teacher, which paid him \$50,000. Total costs during the first year of his firm totaled \$150,000. If the total revenue during his first year of operation was \$175,000, what is Mike's ECONOMIC profit?

Students should respond that Mike's economic profit is -\$25,000 [$\$175k - (\$150k + \$50k) = -\$25,000$]. Students may also answer that Mike ran an economic loss of \$25,000 which is an equivalent answer.

2. Explain why an economic profit of zero is ideal for the firm.

Answers may vary, but students should be able to explain that all resources and explicit AND implicit costs are being used in the most efficient manner.

Topic 3.5 Profit Maximization

Entrance Ticket

1. Eva is about to launch her business making nerdy econ laptop stickers. She knows how much her costs will be and has estimated the best price to charge. Which method of measuring costs and revenue would be the BEST method to determine the exact number of stickers Eva should produce: total cost/revenue, average cost/revenue, or marginal cost/revenue? Why?

Student answers will vary. Discuss with the class that knowing marginal cost/revenue would be the most exact measurement because we can see incrementally what one more unit will do to Eva's overall costs and revenue.

Topic 3.5 Profit Maximization

Exit Ticket

1. List the two rules for profit maximization that determine the amount a firm should produce AND how much the price should be.
 - produce where $MR = MC$
 - charge the price where the demand curve meets optimal output
2. Briefly explain WHY $MR=MC$.

Answers will vary, but students should describe that at $MR=MC$ marginal profit equals zero. This means before $MR=MC$ a firm's total profit increases for each item produced. After $MR=MC$ a firm's total profit decreases. At the intersection point the firm's total profit is maximized.

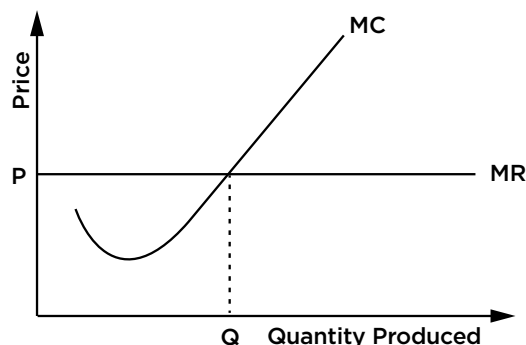


Topic 3.6 Firms' Short- & Long-Run Decisions in Entering/Exiting a Market

Entrance Ticket

- REVIEW! Draw a graph showing where a firm should produce a profit maximizing amount. Assume that marginal revenue is constant (and therefore perfectly horizontal.) Label the profit-maximized quantity produced Q on the X-axis and the optimal price P on the Y-axis.

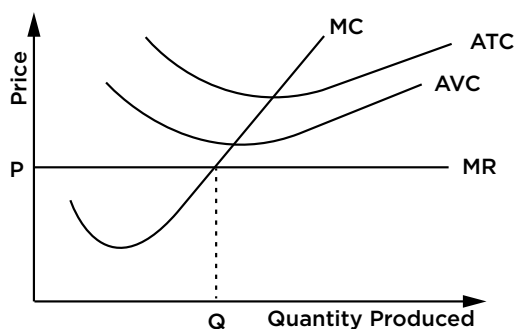
Students should produce a graph like the one below. Tell them that while this determines the profit maximizing amount, the firm cannot know if it is running a profit or loss without knowing $MR=MC$'s relationship to the other cost curves learned earlier in this unit and, ultimately, if it should continue to operate or shut down.



Topic 3.6 Firms' Short- & Long-Run Decisions in Entering/Exiting a Market

Exit Ticket

- Describe the rule when a firm should shut down in the short run.
A firm should shut down if, at optimal output and price, total revenue is less than total variable cost.
- Consider the graph below. Should this firm shut down in the short run? Explain why or why not.



Students should respond that the firm SHOULD shut down because the price where $MR=MC$ is less than the firm's average variable costs.



Topic 3.7 Perfect Competition

Entrance Ticket

1. Assume that anyone can make Squishmallow stuffed animals, and every firm making them is running an economic profit. Sean sees this and enters the market. What will happen to all other firms' economic profit if Sean's Squishmallows business opens?

Students should respond that Sean's entry will cause all other firms' economic profits to decrease.

2. Now assume that Sean's Squishmallows firm is operating at a loss below his average variable cost curve, and he exits the market. What will happen to all other firms' profit/losses if Sean leaves?

Students should answer that if Sean leaves, all other firms' losses will decrease.

Topic 3.7 Perfect Competition

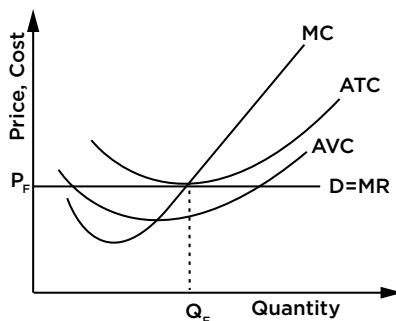
Exit Ticket

1. Explain why MRDARP in perfect competition is perfectly horizontal.

Since all firms are price takers (meaning they cannot influence the price charged without losing their entire market share,) the curve is perfectly elastic.

2. Consider the perfectly competitive graph to be in the long run. Describe why this market is both productive and allocatively efficient.

Answers should describe that since price is equal to marginal cost (MC), it is allocatively efficient for consumers. Where the average total cost (ATC) is minimized at price, it is productively efficient for firms.



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Topic 4.1 Intro to Imperfectly Competitive Markets

Entrance Ticket

1. Think about your high school (or college) academic career. Were there any classes that were similar to each other in subject matter? Did you take any classes that taught material that was completely unique?

Answers will vary. Discuss with students that while most history classes teach different content, the skills of historical analysis and essay writing are similar across courses. Unique courses such as STEM, college dual credit, AP, etc. require specialization or additional certifications to teach, which means that not all teachers can lead those courses. Tell the class similarities and differentiation in coursework are examples that will be used to describe market structures.

2. Have you taken any courses that required prerequisites? If so, what were they? Were those classes bigger or smaller in size compared to classes that had no prerequisites?

Answers will vary, but many students respond that the more prerequisites there are to take a class (i.e., needing French III to take French IV) the smaller the class size usually is. Discuss with students those prerequisites in school are like barriers to enter a class. These barriers will be the focus of learning about other market types.

Topic 4.1 Intro to Imperfectly Competitive Markets

Exit Ticket

1. Fill in the table below by correctly identifying the type of market exists based on the description.

Market Description	Type of Market
Very many firms that have no price-setting power can enter/exit the market extremely easily. Both allocative & productive efficient.	<i>Perfect Competition</i>
A few firms have limited price setting power due to significant barriers of entry/exit. Neither allocative nor productive efficient	<i>Oligopoly</i>
Many firms that produce a differentiated product but have some price setting power. Cannot run long-term economic profits.	<i>Monopolistic Competition</i>
A single firm that is an absolute price maker. Could run long term economic profits.	<i>Monopoly</i>

2. List any three potential barriers to entry into a market that would sustain an imperfect form of competition.

Students' answers will vary, but barriers for entry/exit include high fixed/startup costs, legal barriers, exclusive access to resources and/or technology, and increasing returns to scale.

Topic 4.2 Monopoly

Entrance Ticket

1. Identify an example of a business you think is a monopoly.

List all student responses on the board. It is common that students initially do not understand that while a business dominates a market (E.g., Amazon/Microsoft/Google) they are not technically monopolies. Discuss with students that a private utility is usually a good example of a non-natural monopoly due to government regulations and the other barriers of entry discussed on Topic 4.1

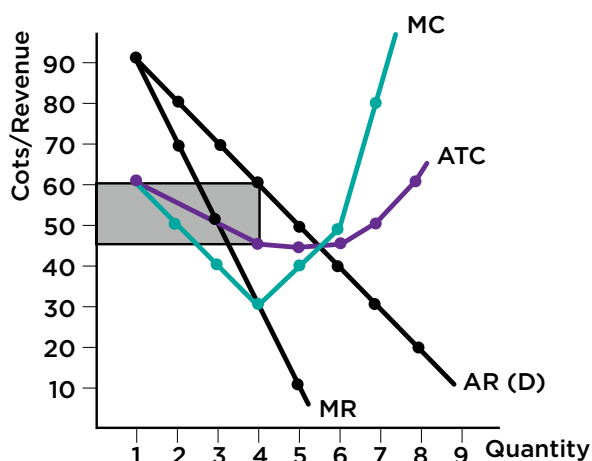
2. Can a monopoly charge as much as it wants for its good/service?

No! Students will usually say “yes” but remind them as an introduction to this lesson that the laws of demand are still in place, and that consumers will forgo what a monopoly is selling if the price is too high. Conclude the introduction by telling students that while a monopoly cannot charge whatever it wants, it will charge the maximum amount a market will allow because there is no other competition.

Topic 4.2 Monopoly

Exit Ticket

1. Describe what is going on in the shaded area of the graph below.



Students should identify that the shaded area is a monopoly's profit.

2. In the previous graph, is this monopoly running an economic loss/profit or breaking even?
Explain how you arrived at that conclusion.

In the graph the monopolist is running an economic profit because the average total cost (ATC) curve is below the average revenue/demand curve at the profit maximized quantity produced amount.



Topic 4.3 Price Discrimination

Entrance Ticket

1. Why do airlines charge business fliers more than vacationers for the same ticket?

Answers will vary. Discuss with students that business customers have a higher ability to pay because of their specific schedules. Vacationers may not be willing to pay as much as their plans can be more flexible.

2. Why does Spotify offer a student subscription for \$5/month when its individual subscription is \$10/month?

Answers will vary, but students should describe that with less income, kids would be less apt to pay for a subscription. A discount makes it more financially appealing for those potential consumers. Instruct the class that if a firm's good/service is non-transferable they can (and should) charge different prices to different consumers beyond what the profit maximizing price/output is.

Topic 4.3 Price Discrimination

Exit Ticket

1. What is the monopolist's ultimate goal if they can price-discriminate for each consumer?

A monopoly would want to eliminate all consumer surplus.

2. If a monopoly could price-discriminate for every available consumer, what would happen to deadweight loss?

A monopoly would eliminate all deadweight loss in addition to eliminating all consumer surplus since they will produce where $P=MC$.



Topic 4.4 Monopolistic Competition

Entrance Ticket

1. How do clothing stores (H&M, American Eagle, Gap, etc.) differentiate themselves when they all sell similar items?

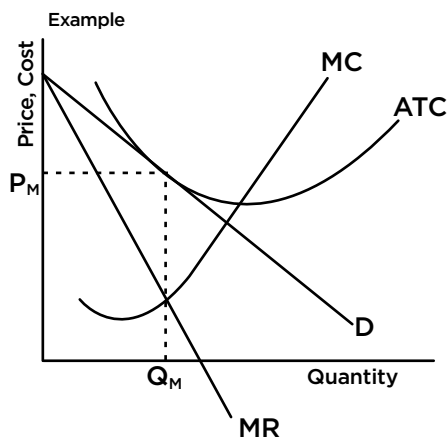
Students will respond that these firms advertise to attract customers (non-price competition), or offer different styles or shopping experiences to gain market share.

Topic 4.4 Monopolistic Competition

Entrance Ticket

1. Describe (or draw a graph) what a monopolistically competitive market looks like in any long-run situation. Be sure to include in your graph the marginal revenue, demand, marginal cost and average total costs curves as well as showing the equilibrium price (P_m) and quantity produced (Q_m).

Students will either describe that all firms will break even as the average total cost (ATC) curve tangentially meets where quantity is produced, and price meets the demand curve. An illustration of this would be like the graph below.



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Topic 4.5 Oligopoly & Game Theory

Entrance Ticket

1. Identify a market that is dominated by just a handful of firms.

Answers will vary, but students should list cell phone carriers, domestic airlines, or smartphone manufacturers as acting like an oligopoly market. More savvy responses may include oil-producing countries.

Topic 4.5 Oligopoly & Game Theory

Exit Ticket

1. Keith and Andria cheated on their last econ test and they both scored 80%. The instructor offered them this deal: If either of them rats out the other, that person receives the full 80% while the other person receives a zero. If neither person rats out the other, they both receive 0%. If BOTH rat out the other, they both receive a 40%. Identify the dominant strategy (if any) for Keith and Andria.

		Andria	
		Confess	Don't Confess
Keith	Confess	40 / 40	80 / 0
	Don't Confess	0 / 80	0 / 0

Both Keith and Andria have a dominant strategy to confess as that is a better outcome no matter what the other person does. Why? Since both Keith and Andria have higher payoffs from confessing (either getting 80% if the other person stays silent or 40% if the other confesses as well.) By not confessing, the risk of receiving a 0% is far greater.

2. Describe a Nash equilibrium in a game theory matrix.

A Nash equilibrium occurs when each player is still doing their best given what the other player is doing.

Topic 5.1 Introduction to Factor Markets

Entrance Ticket

1. Circle the correct choice. In product markets (like the one's we've been studying in this class,) consumers/households control the SUPPLY/DEMAND curve while firms control the SUPPLY/DEMAND curve.
2. Write a simple definition of the word "derivative."

Answers will vary, Discuss with students after that a derivative is something that is based on another source. This is especially important as labor markets are derived from product markets which is what this unit will emphasize. Tell students that in factor markets, the supply and demand curve is now reversed where consumers now dictate the supply of labor (since they work), and the firms control demand (since they hire the workers).

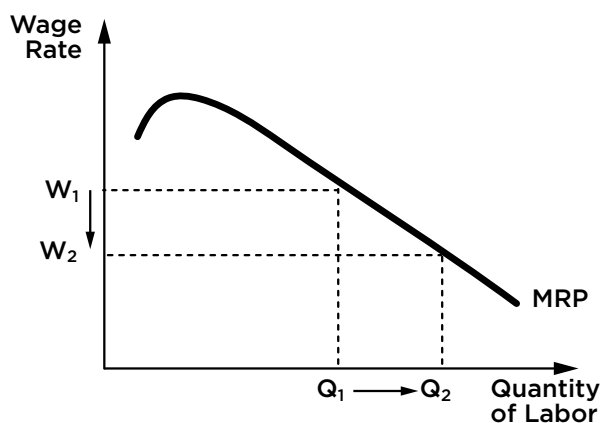
Topic 5.1 Introduction to Factor Markets

Exit Ticket

1. Explain why a firm would want to hire laborers where marginal revenue of product (MRP) intersects with marginal revenue cost (MRC).

Answers will vary, but students should describe that the intersection of MRP/MRC is like that of $MR=MC$. At the point where MRP crosses MRC, the firm's total profit neither increases nor decreases which means optimization has been achieved.

2. Draw a graph showing the MRP curve and what happens to the quantity of labor if wages decrease. Label the decrease in wages from W_1 to W_2 and the change in quantity of labor from Q_1 to Q_2 .



Topic 5.2 Changes in Factor Supply & Demand

Entrance Ticket

1. REVIEW! True or False: changes in price (or wage rates for factor markets) will shift the supply and demand curve.

FALSE! Remind students that changes in price (or wages) will only move along an existing curve. The same applies to factor markets as it did for product markets.

2. Where would demand for pizza workers be needed more—in a college town or a retirement community?

College towns would need more pizza workers as demand for pizza is greater than in an older age neighborhood.

Topic 5.2 Changes in Factor Supply & Demand

Exit Ticket

1. Assume the federal government raises the retirement age to collect Social Security from 65 to 70. How will factor markets shift because of this change?

Students should respond that the supply of labor will increase (shifting to the right) as some people will have to work an additional five years.

2. Between February and April, a national tax preparation service company hires 70,000 temporary employees. What is happening in the factor market supply and demand model. What will happen to wages with this change?

In this case the demand for tax preparers dramatically increases each spring before the April 15 filing deadline and will shift to the right. Because of this shift, wages for workers will increase.



Topic 5.3 Profit Maximizing in Perfectly Competitive Factor Markets

Entrance Ticket

1. REVIEW! Why is price and marginal revenue perfectly elastic in product markets?

Answers will vary, but students should describe that firms are price-takers and cannot influence/adjust price. Instruct students that the same concept applies in factor markets for wages.

2. What is the formula to determine marginal revenue product (MRP) and marginal revenue cost (MRC)?

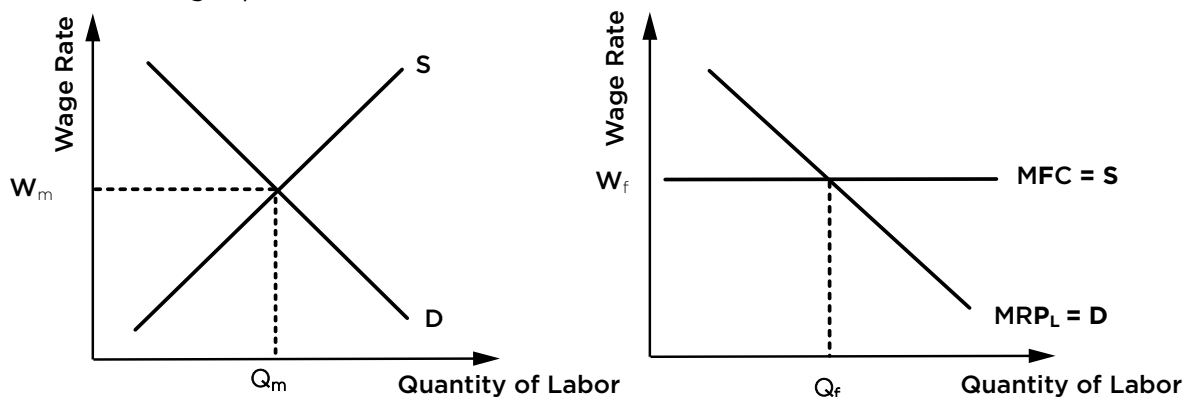
$$MRP = \Delta \text{ Total Revenue} / \Delta \text{ Input}$$

$$MRC = \Delta \text{ Total Cost} / \Delta \text{ Input}$$

Topic 5.3 Profit Maximizing in Perfectly Competitive Factor Markets

Exit Ticket

1. Consider the overall labor market supply/demand graph below. Draw a graph showing how many laborers (L1) a firm would hire in a perfectly competitive market and the wage (W1). Be sure to label the graph completely showing wage rate and quantity of labor on the correct axis and labeling equilibrium W1 and L1.



Topic 5.4 Monopsonistic Markets

Entrance Ticket

1. What is always the rule for profit maximization of hiring labor regardless of the type of market?
A firm will hire the amount of labor where MRP crosses MRC no matter what type of factor market exists.

Topic 5.4 Monopsonistic Markets

Exit Ticket

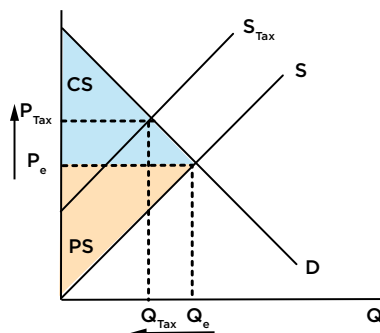
1. Why is a monopsony's labor supply curve upward sloping instead of perfectly elastic?
For a monopsony, the firm must raise the wage to attract more workers, leading to an upward sloping curve.
2. Why does the MRC curve for a monopsony rise above its labor supply curve?
The MRC curve is above supply because to hire more labor the monopsony must also give the higher wage to all its previously hired employees.



Topic 6.1 Socially Efficient & Inefficient Market Outcomes

Entrance Ticket

1. REVIEW! What type of market inefficiency is shown in the graph below?



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Students should respond that a government tax is causing this inefficiency as the supply curve shifts left since the cost of the tax increases the price.

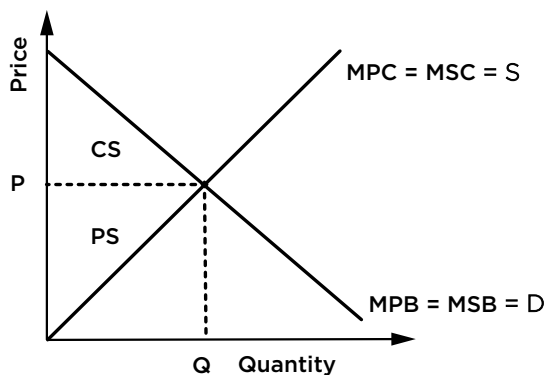
2. REVIEW! When there is any type of inefficiency, the area (usually a triangle) on a graph where market exchanges should be taking place but are not is referred to as:

Deadweight loss.

Topic 6.1 Socially Efficient & Inefficient Market Outcomes

Exit Ticket

1. Draw a graph that shows a perfectly competitive market with a socially efficient outcome. Be sure to label consumer surplus (CS), producer surplus (PS), marginal private benefit (MPB), marginal social benefit (MSB), marginal private cost (MPC) and marginal social cost (MSC).



2. Explain how government subsidies could reduce/eliminate deadweight loss in a monopoly market.

Subsidies will shift the MC curve to the right, closer to intersecting the MR curve, lowering the price, AND producing more, thus shrinking the area of deadweight loss.



Topic 6.2 Externalities

Entrance Ticket

1. Who is responsible for the damage in these pictures?



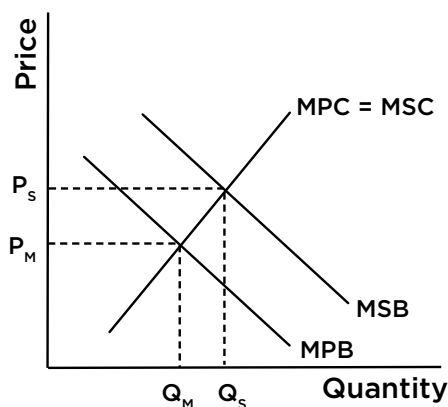
Photo Courtesy Library of Congress

Answers will vary. Discuss with students that the air pollution on the left is caused by a producer, and the air pollution on the right is caused by consumers. Deciding who is responsible for these types of market inefficiencies (externalities) is a key question in this section.

Topic 6.2 Externalities

Exit Ticket

1. What type of externality is shown in this graph? How might the market move to internalize the externality and reduce deadweight loss?



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Students should respond that this is a positive consumption externality and public information campaigns, or government mandates, could reduce deadweight loss.



Topic 6.3 Public & Private Goods

Entrance Ticket

1. Why does the government, and not the private sector, provide military protection for the nation?

Answers will vary. Discuss with students those services like national defense, while extremely costly, can be shared (non-rival) but cannot be excluded—meaning that if someone doesn't pay their taxes to support the army, they're protected anyway. These concepts will be explained in this section to determine whether private firms or the public sector will provide products to the marketplace.

Topic 6.3 Public & Private Goods

Exit Ticket

1. Describe how free riders force the government to provide certain goods and services.

A person who receives benefits from something for which he or she doesn't pay is considered a free rider. A private firm would not enter in a market such as this as there is no incentive for them to participate.

2. Define the two factors that are required for pure public goods.

Pure public goods must be BOTH non-rival AND non-excludable.

3. Provide an example of “the tragedy of the commons.”

Answers will vary, but may range from deforestation to over-hunting/fishing.



Topic 6.4 Government Intervention in Different Market Structures

Entrance Ticket

1. Provide one example of government intervention that is intended to benefit consumers.

Answers will vary, but most students will say that a price ceiling like rent control benefits consumers, or they may argue that price floors like the minimum wage can assist workers/consumers.

2. Provide one example of government intervention that is intended to benefit producers.

Answers will vary but students may respond that subsidies help producers by providing incentives for them to produce more.

Topic 6.4 Government Intervention in Different Market Structures

Exit Ticket

1. Describe the difference between a lump-sum and per-unit tax on a firm's production choices.

A per-unit tax will adjust a firm's production and shift its cost curves, while a lump-sum tax only affects fixed costs.

2. What is the only government intervention that will allow a natural monopoly to produce the socially optimal amount without operating at a loss?

A lump sum subsidy will allow a natural monopoly to produce the socially optimal output and maintain zero economic profit.



Topic 6.5 Inequality

Entrance Ticket

1. List two types of taxes consumers pay.

Answers will vary, but students respond that consumers pay income, property, and sales taxes.

2. Why do governments tax producers and consumers?

Answers will vary. Students may respond that governments need to generate revenue to provide public goods. Others may suggest that taxes can influence behavior (so called “sin” taxes) or even redistribute income. After discussion tell students those debates over types and amounts of taxes are centuries old debates but in this course we will examine the different kinds of taxes and how consumers are affected by them.

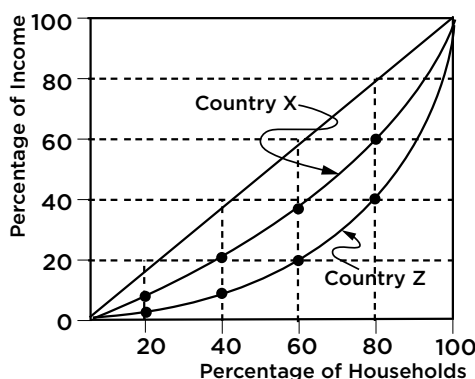
Topic 6.5 Inequality

Exit Ticket

1. Briefly explain how a progressive income tax is designed.

Answers will vary, but students should describe a system where an individual pays a larger percentage of tax as their income increases.

2. Consider the Lorenz curve below. Which country has a more equal distribution of income?



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Country X has a more equal income distribution than Country Z.



Confidence Tracker Sheet

Unit 1																		
Student Name	1.1			1.2			1.3			1.4			1.5			1.6		
	Scarcity			Economic Systems			Production Possibilities Curve			Comp Adv & Trade			Cost Benefit Analysis			Marginal Analysis		
	Don't Know	Unsure	I've Got This	Don't Know	Unsure	I've Got This	Don't Know	Unsure	I've Got This	Don't Know	Unsure	I've Got This	Don't Know	Unsure	I've Got This	Don't Know	Unsure	I've Got This
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Confidence Tracker Sheet

Unit 2																											
Student Name	2.1 Demand			2.2 Supply			2.3 Price Elasticity of Demand			2.4 Price Elasticity of Supply			2.5 Other Elasticities			2.6 Equilibrium/CS & PS			2.7 Market Disequilibrium			2.8 Govt. Interventions			2.9 Intl. Trade & Public Policy		
	Don't Know	Un- sure	I've Got This	Don't Know	Un- sure	I've Got This	Don't Know	Un- sure	I've Got This	Don't Know	Un- sure	I've Got This	Don't Know	Un- sure	I've Got This	Don't Know	Un- sure	I've Got This	Don't Know	Un- sure	I've Got This	Don't Know	Un- sure	I've Got This	Don't Know	Un- sure	I've Got This
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Confidence Tracker Sheet

Unit 3																					
Student Name	3.1 Production Function			3.2 Short Run Production Costs			3.3 Long Run Production Costs			3.4 Profit Types			3.5 Profit Maximization			3.6 Enter/Exit Market			3.7 Perfect Competition		
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Confidence Tracker Sheet

Unit 4															
Student Name	4.1			4.2			4.3			4.4			4.5		
	Intro to Imperfect Markets			Monopoly			Price Discrimination			Monopolistic Competition			Oligopoly and Game Theory		
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Confidence Tracker Sheet

Unit 5												
Student Name	5.1			5.2			5.3			5.4		
	Introduction to Factor Markets			Changes in Factor Supply & Demand			Profit Maximizing in Perfectly Competitive Markets			Monopsonistic Markets		
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CENTRAL TO AMERICA'S ECONOMY:

89

Federal Reserve Bank of St. Louis Print Resources Curriculum Alignment

Unit 1

- **The Wealth Game—Factors for Success**
 - <https://www.stlouisfed.org/education/making-personal-finance-decisions- curriculum-unit/factors-for-success>
- **Page One Economics (Oct 2019) Page One Economics—Money & Missed Opportunities**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/mon-ey-and-missed-opportunities>
- **Production Possibilities**
 - <https://www.stlouisfed.org/education/production-possibilities>
- **Arsenal of Democracy—the United States in World War II**
 - <https://www.stlouisfed.org/education/the-arsenal-of-democracy-the-united-states-in-world-war-ii>
- **Is Trade a Zero Sum Game? The Answer Lies in Candy**
 - <https://www.stlouisfed.org/education/is-trade-a-zero-sum-game>
- **The Spending Decision—Colas & Hot Dogs**
 - <https://www.stlouisfed.org/education/making-personal-finance-decisions- curriculum-unit/spending-decision>
- **Comparative Advantage**
 - <https://www.stlouisfed.org/education/comparative-advantage>

Unit 2

- **Page One Economics (March 2021) The Science of Supply & Demand**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/science-of-supply-demand>
- **Page One Economics (January 2021) Consumer Spending & COVID-19**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/consumer-spending-pandemic>
- **The Illustrated Consumer & Producer Surplus Lesson**
 - <https://www.stlouisfed.org/education/the-illustrated-consumer-and-producer-surplus>
- **Tax Incidence**
 - <https://www.stlouisfed.org/education/tax-incidence>
- **Using a Structured Minimum Wage Debate in the Economics Classroom**
 - <https://www.stlouisfed.org/education/structured-minimum-wage-debate>
- **Page One Economics (Nov. 2017) Does International Trade Create Winners & Losers?**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/interna-tional-trade-winners-losers>

Unit 3

- **Page One Economics (March 2017) The Productivity Puzzle**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/the-productivity-puzzle>
- **Cost Curves & Perfect Competition**
 - <https://www.stlouisfed.org/education/perfect-competition>

Unit 4

- **Page One Economics (April 2017) Advertising: Dollars & Decisions—Monopolistic Competition**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/advertising-dollars-decisions>
- **Page One Economics (November 2018) The Economics of Flying—Oligopoly**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/economics-of-flying>
- **Page One Economics (January 2014) The Rising Cost of College: Tuition, Aid & Price Discrimination**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/the-rising-cost-of-college-tuition-financial-aid-and-price-discrimination>
- **Teaching Market Structures with a Competitive Gum Market**
 - <https://www.stlouisfed.org/education/teaching-market-structures>
- **Monopoly**
 - <https://www.stlouisfed.org/education/monopoly>
- **Monopolistic Competition**
 - <https://www.stlouisfed.org/education/monopolistic-competition>

Unit 5

- **Professional Football—Can You Join the League?**
 - <https://www.stlouisfed.org/education/professional-football>
- **Page One Economics (January 2018) Will Robots Take Our Jobs?**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/will-robots-take-our-jobs>
- **Page One Economics (January 2019) Will Your Smartphone Get You a Job?**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/will-smartphone-get-you-a-job>
- **Page One Economics (January 2022) Gender and Labor Markets**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/gender-and-labor-markets>
- **Page One Economics (July 2023) What Should College Athletes Be Paid? Market Structure and the NCAA**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/market-structure-and-the-ncaa>



Unit 6

- **Page One Economics (September 2014) Economics & The Environment**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/economics-and-the-environment>
- **Page One Economics (March 2019) Economics & Environmental Policy w/ Shale**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/economics-informs-environmental-policy>
- **Page One Economics (January 2017) Education, Income & Wealth**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/education-income-and-wealth>
- **Saving the Environment with Economic Ideas**
 - <https://www.stlouisfed.org/education/saving-the-environment-with-economic-ideas>
- **Herd Immunity & Positive Externalities**
 - <https://www.stlouisfed.org/education/herd-immunity-positive-externalities>
- **Page One Economics (September 2022) Income & Wealth Inequality**
 - <https://www.stlouisfed.org/education/page-one-economics-classroom-edition/income-and-wealth-inequality>

Exit Ticket AP Microeconomics Curriculum Alignment

Unit 1

1.1 Scarcity

- MKT-1.A: Define resources and the cause(s) of their scarcity
 - MKT-1.A.2: Most factors of production (such as land, labor, and capital) are scarce, but some factors of production (such as established knowledge) may not be scarce due to their non-rival nature.

1.2 Resource Allocation/Economics Resources

- MKT-1.B: Define how resource allocation is influenced by the economic system adopted by society
 - MKT-1.B.2: Resource allocation is significantly influenced by the economic system adopted by society, such as command economy, market economy or mixed economy. Each system involves a particular set of institutional arrangements and a coordinating mechanism for allocating scarce resources and distributing output.

1.3 Production Possibilities Curve

- MKT-1.C.a: Define (using graphs as appropriate) the production possibilities curve (PPC) and related terms
 - MKT-1.C.3: The shape of the PPC depends on whether opportunity costs are constant, increasing or decreasing.

1.4 Comparative Advantage/Trade

- MKT-2.B.b: Calculate (using data from PPCs or tables as appropriate) mutually beneficial terms of trade.
 - MKT-2.B.2: Comparative advantage and opportunity costs determine the terms of trade for exchange under which mutually beneficial trade can occur.

1.5 Cost Benefit Analysis

- CBA-1.B: Explain a decision by comparing total benefits and total costs (using a table or a graph when appropriate).
 - CBA-1.B.1: Total net benefits, the difference between total benefits and total costs, are maximized at the optimal choice.

1.6 Marginal Analysis

- CBA-2.A.b: Explain (using a table or graph as appropriate) how a rational consumer's decision making involves the use of marginal benefits and marginal costs.
 - CBA-2.A.3: Consumers experience diminishing marginal utility in the consumption of goods and services.

Unit 2

2.1 Demand

- MKT-3.A.b: Explain (using graphs as appropriate) the relationship between price and quantity demanded and how buyers respond to incentives and constraints.
 - MKT-3.A.5: The conceptual relationship between price and quantity states by the law of demand leads to the downward sloping demand curves explained by the income and substitution effect and/or by diminishing marginal utility.

2.2 Supply

- MKT-3.D: Explain (using graphs as appropriate) producers' (sellers') responses to changes in incentives and technology.
 - MKT-3.D.1: Changes in the determinants of supply can cause the supply curve to shift.

2.3 Price Elasticity of Demand

- MKT-3.E.b: Explain (using graphs where appropriate) measures of elasticity and the impact of a given price change on total revenue or total expenditure.
 - MKT-3.E.2: Price elasticity of demand is measured by the percent change in quantity demanded divided by the percentage change in price or the responsiveness of the quantity demanded to changes in price. Elasticity varies along a linear demand curve, meaning slope is not elasticity.

2.4 Price Elasticity of Supply

- MKT-3.E.c: Calculate (using data from a graph or a table as appropriate) measures of elasticity.
 - MKT-3.E.7: Ranges of values of elasticity of supply are described as elastic or inelastic with the separating benchmark being a magnitude of 1, where the change in the price and the change in the quantity are proportional.

2.5 Other Elasticities

- MKT-3.E.b: Explain (using graphs where appropriate) measures of elasticity and the impact of a given price change on total revenue or total expenditure.
- MKT-3.E.11: Cross price elasticity of demand is measured by the percentage change in the quantity demanded of one good divided by the percentage change in the price of another good. Economists use cross price elasticity of demand to determine whether goods are substitutes, compliments or not related.

2.6 Market Equilibrium & Consumer/Producer Surplus

- MKT-4.A.b: Explain (using graphs as appropriate) how equilibrium price, quantity, consumer surplus and producer surplus for a good or service can be determined.
- MKT-4.A.5: Market equilibrium maximizes total economic surplus in the absence of market failures, meaning that perfectly competitive markets are efficient.

2.7 Market Disequilibrium & Changes to Equilibrium

- MKT-4.B.b: Explain (using graphs where appropriate) how changes in underlying conditions and shocks to a competitive market can alter price, quantity, consumer, and producer surplus.
- MKT-4.B.2: Factors that shift the market demand and market supply curves cause price, quantity, consumer surplus, producer surplus, and total economic surplus (within that market) to change. The impact of the change depends on the price elasticities of demand and supply.

2.8 Effects of Government Intervention in Markets

- POL-1.A.c: Calculate (using data from a graph or table where appropriate) changes in market outcomes resulting from government policies.
- POL-1.A.1: Some government policies, such as price floors, price ceilings and other forms of price and quantity regulation, affect incentives and outcomes in all market structures.

2.9 International Trade & Public Policy

- POL-1.B.c: Calculate (using data from a graph or table as appropriate) changes in market outcomes resulting from public policy related to international trade.
- POL-1.B.2: Tariffs, which governments sometimes use to influence international trade, affect domestic price, quantity, government revenue and consumer surplus and total economic surplus.

Unit 3

3.1 The Production Function

- PRD-1.A.a: Define (using graphs where appropriate) key terms and concepts relating to production and cost.
- PRD-1.A.2: Marginal product and average total product change as input usage changes, and hence, total product changes.



3.2 Short-Run Production Costs

- PRD-1.A.a: Define (using graphs where appropriate) key terms and concepts relating to production and cost.
 - PRD-1.A.6: Production functions with diminishing marginal returns yield an upward sloping marginal cost curve.

3.3 Long-Run Production Costs

- PRD-1.A.b: Explain (using graphs where appropriate) how production and cost are related in the short run and long run.
 - PRD-1.A.11: The long run average total cost is characterized by economies of scale, diseconomies of scale, or constant returns to scale.

3.4 Types of Profit

- CBA-2.C.c: Calculate a firm's profit or loss
 - PRD-1.A.11: The long run average total cost is characterized by economies of scale, diseconomies of scale, or constant returns to scale.

3.5 Profit Maximization

- CBA-2.D.a: Define (using graphs or data as appropriate) the profit maximizing level of production.

3.6 Firm's Short Run Decisions to Produce & Long Run Decisions to Enter/Exit a Market

- PRD-2.A: Explain (using graphs or data where appropriate) firms' short-run decisions to produce positive output levels, or long-run decisions to enter or exit a market in response to profit-making opportunities.
 - PRD-2.A.1: In the short run, firms decide to operate (i.e. produce positive output) or shut down (i.e. produce zero output) by comparing total revenue to total variable cost or price to average variable cost.

3.7 Perfect Competition

- PRD-3.A.b: Explain (using graphs where appropriate) equilibrium and firm decision making in perfectly competitive markets and how prices in perfectly competitive markets lead to efficient outcomes.
 - PRD-3.A.5: At a competitive market equilibrium, the price of a product equals both the private marginal benefit received by the last unit consumed and the private marginal benefit incurred to produce the last unit, thus achieving allocative efficiency.

Unit 4

4.1 Introduction to Competitive Markets

- PRD-3.B: Define (using graphs where appropriate) the characteristics of imperfectly competitive markets and inefficiency.
 - PRD-3.B.4: Incentives to enter an industry may be mitigated by barriers to entry. Barriers to entry—such as high fixed/startup costs, legal barriers to entry, and exclusive ownership of key resources—can sustain imperfectly competitive markets.

4.2 Monopoly

- PRD-3.B.c: Calculate (using data from a graph or table as appropriate) areas of consumer surplus, profit (loss), and deadweight loss in imperfectly competitive markets.
- PRD-3.B.6: In a monopoly, equilibrium (profit-maximizing) quantity is determined by equating marginal revenue (MR) to marginal cost (MC). The price is charged is greater than the marginal cost.

4.3 Price Discrimination

- PRD-3.B.c: Calculate (using data from a graph or table as appropriate) areas of consumer surplus, producer surplus, profit (loss) and deadweight loss in imperfectly competitive markets.
- PRD-3.B.9: With perfect price discrimination, a monopolist produces the quantity where price equals marginal cost (just as a competitive market would) but extracts all economic surplus associated with its product and eliminates all deadweight loss.

4.4 Monopolistic Competition

- PRD-3.B.b: Explain (using graphs where appropriate) equilibrium, firm decision making, consumer surplus, producer surplus, profit (loss) and deadweight loss in competitive markets and why prices in imperfectly competitive markets cannot be relied on to coordinate the actions of all possible market participants and can lead to inefficient outputs
- PRD-3.B.10: In a market with monopolistic competition, firms producing differentiated products may earn positive, negative or zero economic profit in the short run. Firms typically use advertising as a means of differentiating their product. Free entry and exit drive profits to zero in the long run. The output level needed to minimize average total costs, creating excess capacity. The price is greater than marginal cost, creating allocative inefficiency.

4.5 Oligopoly & Game Theory

- PRD-3.C.b: Explain (using tables as appropriate) strategies and equilibria in simple games and the connections to theoretical behaviors in various oligopoly market and non-market settings.
- PRD-3.C.6: A Nash equilibrium is a condition describing the set of actions in which no player can increase his or her payoff by unilaterally taking another action, given the other players' actions.

Unit 5

5.1 Introduction to Factor Markets

- PRD-4.A.c: Calculate (using data from a graph or table where appropriate) the marginal revenue product and marginal resource cost.
- PRD-4.A.2: The quantity of labor demanded is negatively related to the wage rate, while the quantity of labor supplied is positively related to the wage rate in a given labor market, other things constant.

5.2 Changes in Factor Demand and Factor Supply

- PRD-4.B: Explain (using graphs where appropriate) firms' and factors' responses to changes in incentives and constraints.
- PRD-4.B.2: Changes in the determinants of labor supply (such as immigration, education, working conditions, age distribution, availability of alternative options, preferences for leisure, and cultural expectations) cause the labor supply curve to shift.

5.3 Profit Maximizing Behavior in Perfectly Competitive Factor Markets

- PRD-4.C.b: Explain (using graphs where appropriate) the profit maximizing behavior of firms buying labor (with other inputs fixed) in perfectly competitive markets.
 - PRD-4.C.1: In a perfectly competitive labor market the wage is set by the market and each firm hires the quantity of workers where the marginal factor cost equals the marginal revenue product of labor. A typical firm may be a perfect competitor in the labor market even if it is an imperfect competitor in its output markets.

5.4 Monopsonistic Markets

- PRD-4.D.b: Explain (using graphs where appropriate) the profit maximizing behavior of firms buying labor (with other inputs fixed) in monopsonistic markets.
 - PRD-4.D. 2: When a typical firm hires additional workers in a monopsonistic labor market, the marginal factor (resource) cost is greater than the supply of labor.

Unit 6

6.1 Socially Efficient & Inefficient Market Outcomes

- POL-2.A.b: Explain (using graphs where appropriate) why resource allocation in perfectly competitive markets is socially efficient.
 - POL-2.A.2: The market equilibrium quantity is equal to the socially optimal quantity only when all social benefits and costs are internalized by individuals in the market. Total economic surplus is maximized at that quantity.

6.2 Externalities

- POL-3.B: Explain (using graphs where appropriate) how public policies address positive or negative externalities.
 - POL-3.B.1: Policies that address positive or negative externalities include taxes/subsidies, environmental regulation, public provision, the assignment of property rights, and the reassignment of property rights through private transactions.

6.3 Public & Private Goods

- POL-3.C.b: Explain how the nature of rival and/or excludable goods influences the behavior of individuals or groups.
 - POL-3.C.4: Some natural resources are, by their nature, non-excludable and rival and therefore open access. Private individuals inefficiently overconsume such resources.

6.4 Effects of Government Intervention in Different Market Structures

- POL-4.A.b: Explain (using graphs where appropriate) how government policies can alter market outcomes in perfectly and imperfectly competitive markets.
 - POL-4.A.2: Lump sum taxes and lump sum subsidies do not change either marginal cost or marginal benefit: only fixed costs will be affected.

6.5 Inequality

- POL-5.A: Define measures of economic inequality in income and wealth.
 - POL-5.A.2: The Lorenz Curve and Gini Coefficient are used to represent the degree of inequality in distributions and to compare distributions across different countries, policies, or time periods.