

Ed Tech Series: Digital Review Strategies

How can we help students learn to study more
effectively?

Presented by Susanna McConnell

June 7, 2022

Susanna.Pierce.McConnell@gmail.com



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Agenda

- ★ Participant Insights
- ★ Tools and Strategies to Build Study Skills
 - Short Reviews: Socrative, Quizizz, Quizlet
 - Full Class Review: Choice Boards + “Cliffs Notes”
 - Comprehensive Reviews: Crash Course
- ★ Reflection



Let's connect!



What course do you teach, and where did you go to study in college?

Add your response in the Chat box!

Objectives

- Participants will:
 - discover tech tools that can provide formative assessments of student mastery.
 - learn strategies to build review techniques within classrooms.
 - reflect on the implementation into their own classroom.

What problems did I notice post 2020?

- 1 Challenges adjusting to classroom learning
- 2 Increase in anxiety
- 3 Drop in Exam Grades
- 4 Ineffective Study Techniques

Studying for long periods of time doesn't work; Re-reading notes doesn't work

How can I help teach students to study more effectively?

Active Review Techniques

Part 1: Short Review Tactics

**How can you build vocabulary and
practice MC questions?**

Socrative, Quizizz, Quizlet




Quick Data

- A digital assessment tool that gives you live data on student progress
 - randomize questions/answers, shows percentages
 - used as formal and informal assessments

Launch Quiz ✕

1 Choose Quiz Unit 2 Practice Questions [Change](#)

2 Choose Delivery Method and Settings Step 2 of 2

 Instant Feedback i	<input checked="" type="checkbox"/> Require Names
 Open Navigation i	<input checked="" type="checkbox"/> Shuffle Questions
 Teacher Paced i	<input checked="" type="checkbox"/> Shuffle Answers
	<input checked="" type="checkbox"/> Show Question Feedback
	<input checked="" type="checkbox"/> Show Final Score
	<input type="checkbox"/> One Attempt i

[Previous](#) [Start](#)

Quick Data

- A digital flashcard review game for students to practice words on teams
 - Review day
 - End of class practice





Add your response in the chat box.

Participant Chat:

What struggles have you noticed students face when studying?

Part 2: Unit Reviews

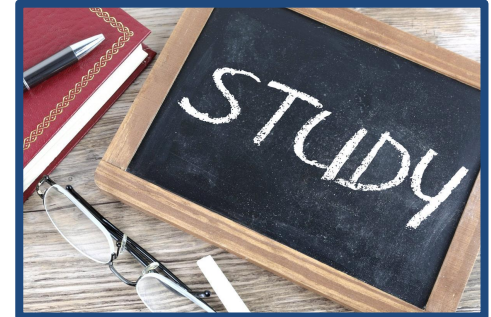
**How can you teach students to
target weaknesses?**

[Choice Boards](#), “Cliffs Notes” Guides

Choice Boards - 1-2 Day Review

Students...

1. Bring in headphones.
2. Open the digital choice board.
3. Make a copy.
4. Start in the center to read about [smarter studying](#).
5. Complete 1 box per row.



Choice Board Assignment



Choice Menu: Review for Units 1 + 2

Directions: Make a copy of this document, and then **choose 2 numbers (not #5)** to review, or **1 video from 4 or 6**. Highlight the box(es) you choose. Then, answer the question within the box after completing the activity. Finally, answer the review question at the bottom to earn full credit.

<p>1 Vocabulary Building Practice the Unit 1 and 2 Quizlets</p> <ul style="list-style-type: none"> • Quizlet Flashcards • Quizlet Flashcards <p>What words did you miss?</p>	<p>2 Digital Quizzes Review simple vocabulary with digital quizzes</p> <ul style="list-style-type: none"> - Kahoot Unit 1 - Kahoot Unit 2 <p>What questions did you miss?</p>	<p>3 Read about Concepts Read about any part of these topics in 5 Steps to a 5 (Pages 49-98)</p> <p>What did you read more about?</p>
<p>4 Watch a Review Video</p> <ul style="list-style-type: none"> • Unit 1: Review Econ • Unit 2: Review Econ <p>What's something you are now more clear on?</p>	<p>5 START HERE AND END HERE!</p> <p>Zoom Meeting - Overview of the Activity + Submit on GC</p> <p>★</p>	<p>6 Watch a Review Video</p> <ul style="list-style-type: none"> • Unit 1: ACDC 35 minutes • Unit 2: ACDC 29 minutes <p>What's something you are now more clear on?</p>
<p>7 Practice Multiple Choice Problems</p> <ul style="list-style-type: none"> • Albertio Units 1 + 2 <p>What problems did you miss, and why?</p>	<p>8 Practice Topics from Unit 1</p> <ul style="list-style-type: none"> • Comparative Advantage Practice • Supply and Demand Practice <p>What technique did you learn about solving these questions?</p>	<p>9 Practice Topics from Unit 2</p> <ul style="list-style-type: none"> • Elasticity Practice Problems • Elasticity and the Total Revenue Test • Tax Incidence <p>What technique did you learn about solving these questions?</p>

FINAL QUESTION: What do you need to review/practice before tomorrow?

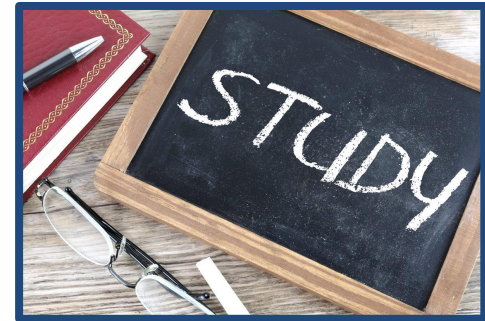
Other resources for choice board templates:

- [Canva](#)
- [Slides Mania](#)

“Cliffs Notes” Guides

Students...

1. Look through the teacher review.
2. Compile terms, formulas, graphs into a condensed format.
3. Use different colors to section content.
4. Submit the assignment the day before exam.



Cliffs Notes Guide Assignment

Incentive Points for Unit 5/6 Exam: Cliffs Notes Guide

Incentives matter. In order to incentivize students to study thoroughly and early for the exam, you may complete this assignment for extra points.

To receive up to +5 extra points on your upcoming exam for Unit 5/6, highlight your efforts in preparing for the exam by compiling your notes into a "Cliff Notes Guide."

Complete the following steps, and then create a **handwritten version of this guide with different colors into a 1 pager.**

Look over the [Unit 5/6 Exam Review](#) and learning targets.

Compile the following important information into different segments with **different colors.**

Submit your unique version of this guide into Google Classroom (Topic Incentive Points) by Monday, April 18 @11:59 PM.

Cliffs Notes Rubric

Category	Description	Possible Points
Important Vocabulary	Includes the term + definition of important vocabulary in a clear format into the 1 pager.	1
Graphs	Shows the relevant graphs for the Unit 5/6	3
Formulas	Includes the important formulas for the Units	1
Professionalism	Shows extreme professionalism in effort in making the review clear and unique	1



Unit 5/6 Exam Incentive Points (OPTIONAL)

Due Apr 18, 11:59 PM

Posted Apr 13 (Edited Apr 13)

If you would like to receive up to 5 points on your Unit 5/6 Exam on April 19, please use the documents for your Cliff's Notes Review.

12

Turned in

14

Assigned



Incentive Points for Unit ...
Google Docs



Unit 5 and 6 Review Sprin...
Google Docs

[View assignment](#)

Student Example

Micro: Unit 5/6

VOGABULARY

Factor market - the market in which the factors of production are bought by firms and sold by household

marginal revenue product - the change in total revenue when an additional unit of a resource is employed, other things constant

perfectly competitive labor market - firms demand labor and workers supply labor

monopsony labor market - one firm hiring workers, workers are relatively immobile, wage is set by firm

negative externality - people who don't produce or consume a good but benefit from production

positive externality - people who don't produce or consume a good but are harmed by production

deadweight loss - cost to society of inefficiency of consume a good

social efficiency - optimal distribution of resources in society when MSB = MSC

income disparity - unequal distribution of income in a population

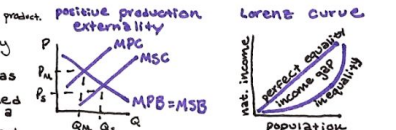
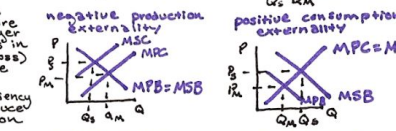
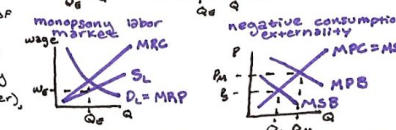
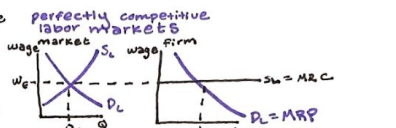
non-rivalrous goods - goods that are not diminished as they are consumed

rivalrous goods - goods that can only be consumed by one person at a time

public goods - non-excludable and rivalrous (overproduces)

private goods - non-excludable and rivalrous (underproduces)

GRAPHS



CALCULATIONS

marginal revenue product: $MR \times P$
point of hiring workers: $MRP = MRC$
least cost hiring rule: $MPB = MPK$
deadweight loss: $\frac{1}{2} (Q_1 - Q_0) (P_1 - P_0)$
neg. consumption externality: $MPB > MSB$
neg. production externality: $MSC > MPC$
pos. consumption externality: $MSB > MPB$
pos. production externality: $MPC > MSC$

Derived Demand - demand for goods & services creates a demand for the factors of production to produce those goods & services

Factor market - not a market in which the factor of production is bought by firms & sold by households

marginal revenue product - the change in total revenue when an additional unit of a resource is employed, other things constant

marginal resource cost - the additional cost of an additional resource (worker)

MRP = MRC Rule - the principle that to maximize profit, a firm should employ the quantity of a resource or which its marginal revenue product (MRP) is equal to its marginal resource cost (MRC)

market failure - when the free market fails to allocate resources efficiently

public good - a good that is non-excludable and non-rival in consumption, created the broader problem which leads to either, or complete, market failure

externalities - costs or benefits that extend or "spill over" those causing the effects

income disparity - the gap in income between rich and poor

causes - differences in the services, human capital, social capital, intelligence, ethics or discrimination, access to education, parents, training, and upbringing (not w/ education & social skills)

tax - raised paid for a company or person in the government, it doesn't address a specific company that profits the polluter to pay for that cost at their own expense

subsidy - a government program that supports a business or market, and also a situation in private public characteristics

polluter tax - a tax for which the percentage of income paid on taxes is used as income

polluter - someone who pollutes the environment, polluting is making or emitting pollutants

pollution - the property of a good whereby a person can be prevented from using it

non-rivalrous - characteristics of some goods where the consumption of the good by one person does not diminish consumption by someone else

non-excludable - goods that are not rivalrous

common resources - goods that are rivalrous in consumption but not excludable

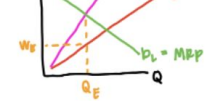
common property - public land, water

externality - a cost or benefit that is not reflected in the market price

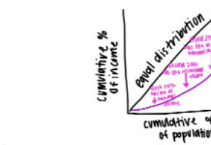
Perfectly Competitive Labor Market



Monopsony



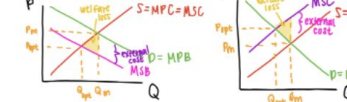
Lorenz Curve



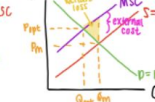
Formulas

- Marginal Revenue Product = $MR \times Price$
- Point of Hiring Workers = $MRP = MRC$
- Least Cost Hiring Rule = $MPB = MPK$
- Deadweight Loss (Triangle) = $\frac{1}{2} B \times H$
- Positive Externalities in Production = $MPC > MSC$
- Positive Externalities in Consumption = $MSB > MPB$
- Negative Externalities in Production = $MSC > MPC$
- Negative Externalities in Consumption = $MPB > MSB$

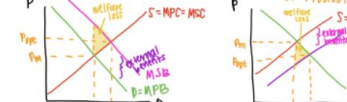
Graph of Negative Externality of Consumption



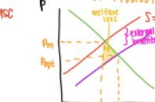
Graph of Negative Externality of Production



Graph of Positive Externality of Consumption



Graph of Positive Externality of Production





Add your response in the chat box.

Participant Chat:

How does your school conduct finals?

Part 3: Comprehensive Reviews

**How can you teach students to
prepare for Comprehensive
Exams?**

Crash Course

Crash Course

Crash Course Overview

Day 1: Pre-Assess student knowledge + Topic Assignment.

Day 2: Crash Course Description + Rubric + Create 1 Pager.

Day 3, 4, 5: Script + Film Video

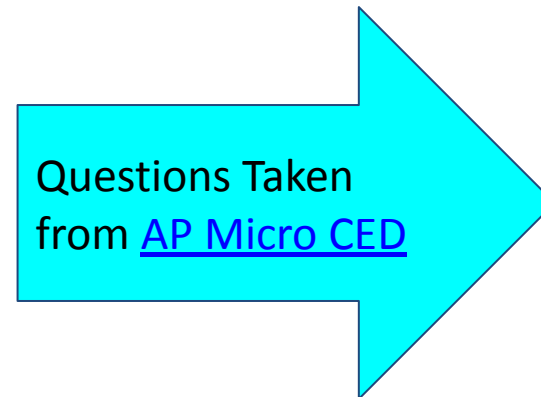
Day 6: Watch videos.

Step 1: Pre-Assessment

Practice AP Exam: Targeted Approach

Mock Exam: Complete the 15 question practice exam to help target your studying. You'll have 17 mins.

MC Question	Answer	Correct Answer	Unit	Points Earned
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
TOTAL				



Analysis: Grade your own questions, and then fill out the following information.

Unit 1 _____ out of 2 Unit 3 _____ out of 4 Unit 5 _____ out of 1
Unit 2 _____ out of 4 Unit 4 _____ out of 3 Unit 6 _____ out of 1

Based on the data, the unit I got the most correct in was _____, and the unit with the most incorrect was _____.

Step 2: Group Creation + Topic Assignment

1. Students decide if they prefer to work individually or in a group.
2. Fill out form.
3. Create groups based on weaknesses and peer insights.

Would you prefer to work in a group of your choosing or one that Ms. McConnell chooses? *

I choose.

Ms. McConnell chooses

If you could choose, which 3 people would you like to work on this project with? *

Long answer text

Who is someone that you would prefer not to work with, and why? *

Long answer text

Would you prefer to do this assignment independently? *

Yes

No

Any other information? *

Long answer text

Step 3: Crash Course Description + Rubric

1. Give students the review project description + rubric.



Unit "Crash Course Review" Task

Essential Question(s): How can students help re-explain the complex topics within the Units of our course? What connections can be made between these topics and the real world?

Summative Task: AP Microeconomics includes a rigorous course with many complex topics within one semester. This task encourages students to find a creative way for their peers to remember the distinctive components within a specific unit.

Prompt: You have been hired by McEconnell Test Prep to create a clever and creative "Crash Course" of 6-8 minutes to remember the key concepts of your assigned Unit. Within a group, create an instructional video to ensure that students clearly remember the important concepts within your Unit. If your group would like to create a music video like [Ms. McConnell's](#), you can also make a music video. The best "video" will be shared with other teachers for students across the country to view.

Your product(s) must define, explain, and/or draw:

- the importance of the content
- the key vocabulary within your Unit
- important formulas and calculation
- key graphs within the Unit
- connections to other Units
- real world applications

Process: You will have 5 class periods to complete specific tasks that will aid in your product development, but might need to complete the remainder **outside of class**. Each task will be due separately: your 1 pager, the script, and the final product (group).

Day 1: Selection and Clarification - 4/19/22 + 4/20/22

- Create a digital 1 pager over the Unit, based on the review sheet.
 - 1 Pager due 4/20 in class.
- Decide if you would like to create a music video or instructional video.

Day 2: Integration of Information into Product - 4/21/22

- Begin writing the script for your final product. Keep in mind it must be correct, engaging, innovative, and professional.
 - Script due 4/21 @11:59 PM.

Day 3/4/5: Integration of Information into Product - 4/22/22, 4/25, 4/26

- Record/Produce the music video or instructional video. Keep in mind it must be correct, engaging, innovative, and professional.
 - Product due due 4/26 @11:59 PM

Day 6: Present - 4/29/22

- Share your final product to your peers to convince them yours is the best!



Review "Crash Course" Rubric

Component	Description	Points Possible	Points Received
Importance of Studying	Includes an explanation of why this topic is important to study	5	
Key Vocabulary	Includes the 10 most important or confusing vocabulary from the unit and re-explains them simply to students	10	
Relevant Formulas	Includes the important formulas from the unit and correctly explains the meaning or how to use them	10	
Application of Formulas	Solves a problem with an important formula (this could be supplemental in a music video or just on screen during singing)	10	
Graph Explanations	Includes hand-drawn versions of the important graphs from the unit with appropriate labels and verbal or written explanations of the meaning on the screen.	25	
Application to the Real World	Explains how the concepts can be applied to everyday lives or where they can be found	10	
Clever Ways to Remember Info	Includes clever phrases and acronyms to help remember difficult content in the unit	10	
Innovation	Shows cleverness with a distinctive product that integrates the information in an engaging format	10	
Professionalism	Shows extreme effort and a high-quality final product that demanded on-task behavior each class	10	
Total Score	Can receive extra points for extreme creativity and/or professionalism	100 (up to 105)	

Teacher Comments:

Step 4: Students create 1 Pager.

1. Give students Unit Reviews.
2. Have them create a collaborative 1 pager.



4.20.22 Unit Review Document

Due Apr 20, 11:59 PM

Posted Apr 20 (Edited Apr 20)

Please use the following review requirements to create your digital review document over your Unit.

You may specialize in:

- 1) Definitions
- 2) Formulas
- 3) Graphs
- 4) Multiple Choice Questions

Make sure that your one pager is organized and in different colors to make it easy for students to read and refer to.

12

Turned in

21

Assigned

Student Examples

Unit 3: Production and Costs

VOCABULARY

total product: the total volume/amount of final output produced by a firm

marginal product: extra output for one extra input

the law of diminishing marginal returns: adding an additional factor of production leads to smaller increase in output; occurs where marginal product decreases and marginal cost increases

fixed inputs: resource that doesn't change despite changes in quantity (equipment)

variable inputs: resource that can be changed in the short-run (labor)

fixed costs: costs that do not change with quantity in the short-run (rent, loans) - variable costs: costs that do change with quantity produced (labor)

short run: time when one resource is fixed

long run: time when all resources are variable

accounting profit: financial profit; Total Revenue explicit costs

economic profit: the different between the total revenue and total costs (implicit and explicit)

explicit costs: \$\$ (like things listed on receipts)

implicit costs: value of forgone opportunity

the relationship between product and cost curves: there is an inverse relationship

the relationship between marginal costs and average cost curves: as ATC decreases, $MC < ATC$

and as ATC increases, $MC > ATC$

economies of scale: downward part of LRATC curve (LRATC decreases when plant size increases)

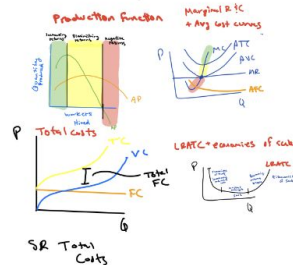
diseconomies of scale: upward part of LRATC curve (LRATC increases when plant size increases)

profit maximization: where marginal revenue is equal to marginal cost

FORMULAS

The point of diminishing returns	$MP = \frac{\Delta TP}{\Delta L}$ (@ labor), when MP decreases
Profit Maximization	$MR = MC$ (@ output)
Marginal Product	$MP = \frac{\Delta Q}{\Delta L}$
Average Product	$AP = \frac{TP}{L}$
Total Product	$TP = AP \times L$
Marginal Cost	$MC = \frac{\Delta TC}{\Delta Q}$
Average Fixed Cost	$AFC = \frac{TFC}{Q}$
Average Variable Cost	$AVC = \frac{VC}{Q}$
Average Total Cost	$ATC = \frac{TC}{Q}$ or $ATC = AFC + AVC$

GRAPHS



1) A unique short-run problem in the production of a good is the Law of Diminishing Marginal Returns. Which of the following statements best explains his phenomenon?

- As Jack eats continuous slices of pizza, he enjoys less and less enjoyment from each slice
- Because large-scale production allows the realization of economies of scale, the real costs of production vary directly with the level of output
- As more workers are added to work on a project that has a fixed amount of capital resources for them to work on, beyond some point the resulting extra output will begin to decline
- Population growth automatically adjusts to that level at which the average product per worker will be at a maximum
- Proportionate increases in the inputs of all resources will result in a less-than-proportional increase in total output

2) The distance between Average Total Cost and Average Variable Cost represents:

- The Total Fixed Costs
- The Total Variable Cost
- The Average Fixed Cost
- The Marginal Cost
- The Marginal Revenue

3) Which of the following explains why the law of diminishing marginal returns occurs?

- Per-unit costs for a firm increase as the firm builds successively larger plant sizes

- Successive units of a good yield lesser amounts of satisfaction to consumers
- Additional variable resources crowd fixed resources
- When a firm reduces price to increase sales, additional revenue to the firm is less than the price
- When the price of a product is reduced, total revenue falls.

4) Which of the following below would be subtracted from total revenue to calculate economic profits?

- Property taxes
- Electricity costs
- Wages from job sacrificed to start new business
- Interest forgone when funds are used to buy equipment

- I only
- I and II
- I, II, and III
- I, II and IV
- I, II, III and IV

5) Which of the following situations best defines "long run" in economics?

- 10 years of more
- When all inputs are fixed
- When most inputs can be changed
- When all inputs can be changed
- When no inputs are variable

- C
- C
- C
- E
- D

Step 5: Students create Crash Course.

1. Have students write a script and edit it.
 - Provide feedback to groups.
2. Students film and edit.
3. Submit videos online for you to organize by unit.

Student Example



Step 6: Students review videos.

1. Put the videos into a [shared folder](#) by unit.
2. Let students view “Crash Courses” based on weaknesses.
3. Give them time to fill out the template.

Rebuild: Now review 2 [videos](#) that will help you review content based on your weaknesses. These 2 should be units you feel least confident in.

Unit + Class Period	Important Vocabulary - Add 3 words + Definitions	Important Formulas - Add 3 you need to review	2 Important Graphs	What do you need to review?
Unit by				
Unit by				
What did you like about Video 1? What did you like about Video 2?				

How will you review for the topics before the Comprehensive Exam and the AP (if taking it)? (Review Videos, Quizlet, Albertio, FRQs, Notes)

To review vocabulary I plan to...

To practice graphs I plan to...

To review questions I plan to...

Strategies for Integrating Review Techniques

- Short Reviews
 - Socrative
 - Quizizz
 - Quizlet Live
- Unit Reviews
 - Choice Boards
 - Cliffs Notes - by hand
- Comprehensive Reviews
 - Crash Course
 - Pre-Assessment
 - Group Creation
 - 1 Pager
 - Script
 - Film
 - Watch Unit Reviews to Target Review



Reflect

How can you use these ideas in
your classroom?



Add your response in the chat
box.

References

- [Canva](#)
- [College Board: AP Micro CED](#)
- [5 Research Backed Study Techniques](#)
- [Quizlet](#)
- [Quizlet Live Video](#)
- [Quizizz](#)
- [Socrative](#)
- [Slides Mania](#)
- [Studying 101](#)
- [TPT: Susanna Pierce McConnell: Review Project](#)

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