




# LEARNING MODEL

Active Learning



# Goal, Overview, and Application

## Goal

At Macmillan, our goal is to drive learner outcomes. One important aspect of this is to leverage findings from the Learning Sciences to apply to product design, iteration, and implementation.

## Overview

A Learning Model is a visualization of the instructional and assessment elements that underlie a learning experience and help instructors and institutions understand how a well-designed experience may drive impact. This Learning Model is based on research and practices in Active Learning, a pedagogy that has a substantial body of research demonstrating that it drives student engagement, satisfaction, and performance.

## Application

This Learning Model underpins how we're developing a next-generation of learning products; however, it may be adopted or adapted for other learning experiences.

# Research Foundation and Process

## Foundation

This Learning Model is based upon a thorough literature review of educational research by learning researchers.

## Process

Initially, our Learning Research team conducted several literature reviews in order to formulate this Learning Model, which then underwent a series of reviews, including:

- Internal review by a team of 4 learning scientists,
- External review by a team of 7 students, and
- External review by our 5-person Learning Research Advisory Board.

All of these researchers, contributors and reviewers are listed to the right.

# Researchers and Contributors

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## Special Thanks

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## Components

### Student Success

Opportunities to support student outcomes beyond course instruction and assessment.

### Metacognition

Opportunities to engage in metacognitive activities that prompt evaluation of developing knowledge.

### Instructional Content

Opportunities to provide new or review learning-objective aligned instructional information.

### Assessment

Opportunities for formative and summative assessment activities that assess learning objectives.

## Elements

### Motivation

### Self-Regulated Learning

### Relevance

### Study Skills

### Preflection

### Reflection

### Materials (Publisher, Supplemental, Reference, OER)

### Lecture

### Instructional Reviews

### Integrated Formative Assessments

### Practice/Homework

### End of Unit or Term Summative Assessments

## BEGINNING OF TERM And throughout

Motivation

Self-regulated Learning



Self-Efficacy

Persistence

Study Skills

Goal Setting

## BEFORE CLASS

Relevance



Instruction + Integrated  
Formative Assessment



Reflection



## DURING CLASS

Instruction + Integrated  
Formative Assessment



Reflection



## AFTER CLASS

Practice / Homework



Reflection



## END OF UNIT

Self-regulated Learning



Instructional Review



Summative Assessment



Study Skills

Testing Strategies

## ACTIVE LEARNING

This Learning Model is comprised of four parts: Beginning of term (intended to encompass the first few periods or week), followed by a cycle that continues throughout the term with learning elements happening before, during, and after class.

In this model, "class" can be face-to-face, blended, or online. This model can be applied to a class that meets once a week or multiple times per week.

## BEGINNING OF TERM And throughout

Provide growth mindset videos if the class population could benefit from them

### Motivation



Self-Efficacy

Persistence

### Self-regulated Learning



Study Skills

Goal Setting

Have an explicit activity in which students write down what knowledge and/or skills they hope to get out of the course that can be revisited throughout and during end-of-unit summarizations.

## BEFORE CLASS

Relevance



Instruction + Integrated  
Formative Assessment



## DURING CLASS

Instruction + Integrated  
Formative Assessment



Use iClicker questions throughout the lecture to check for comprehension.

Reflection



## AFTER CLASS

Practice / Homework



Reflection



Assign a discussion post as part of the homework requirements.

## END OF UNIT

Assign small group study sessions to encourage review and peer collaboration.

Self-regulated Learning



Study Skills

Testing Strategies

Instructional Review



Summative Assessment



## ACTIVE LEARNING EXAMPLES

This Learning Model provides many opportunities to personalize the depth and frequency of activities to meet the needs of both instructors and students.

The components are meant to identify goals or milestones during an active learning experience. They provide flexibility in course design and meeting frequency. The activities used to accomplish each component can vary widely - some examples are given in the callouts.

## BEGINNING OF TERM And throughout

Motivation

Self-regulated Learning



Self-Efficacy

Persistence

Study Skills

Goal Setting

## EXPLANATION

### BEFORE CLASS

Relevance



Instruction + Integrated  
Formative Assessment



Reflection



At the beginning of the term, it is important to help set up students for success - to be effective, motivated, and self-directed.

### DURING CLASS

Instruction + Integrated  
Formative Assessment



Reflection



#### Techniques includes:

- Promoting a growth mindset,
- Fostering student self-efficacy,
- Educating students on effective study skill techniques, and
- Encouraging students to set and track their own goals.

### AFTER CLASS

Practice / Homework



Reflection



### END OF UNIT

Self-regulated Learning



Instructional Review



Summative Assessment



Study Skills

Testing Strategies

## BEGINNING OF TERM And throughout

Motivation

Self-regulated Learning



Self-Efficacy

Persistence

Study Skills

Goal Setting

## EXPLANATION

From this point, the Learning Model gets divided into things students should do before, during, and after class to optimize their learning.

### BEFORE CLASS

Relevance



Instruction + Integrated  
Formative Assessment



Reflection



### DURING CLASS

Instruction + Integrated  
Formative Assessment



Reflection



### AFTER CLASS

Practice / Homework



Reflection



### END OF UNIT

Self-regulated Learning



Instructional Review



Summative Assessment



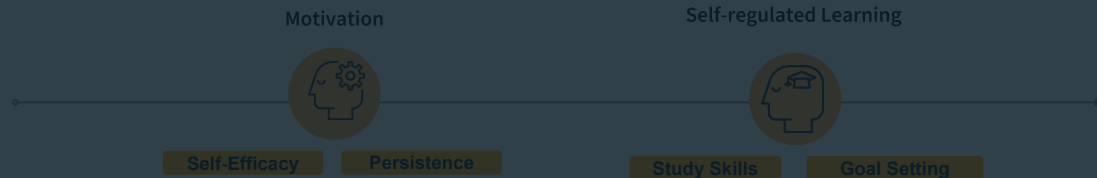
Study Skills

Testing Strategies

### Before class, students should:

- Clearly understand the relevance of the subject matter to their lives, programs-of-study, other course content, and/or careers.
- Access instructional materials, such as readings or videos.
- Complete low-stakes formative assessment integrated with instruction to assess their own understanding, receive immediate feedback, and be more prepared to engage in class.
- Reflect on what their learning means to them, and what questions they may have.

## BEGINNING OF TERM And throughout



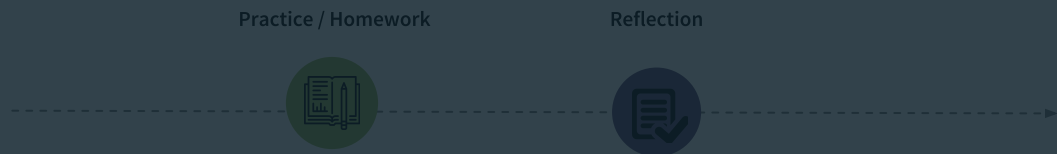
## BEFORE CLASS



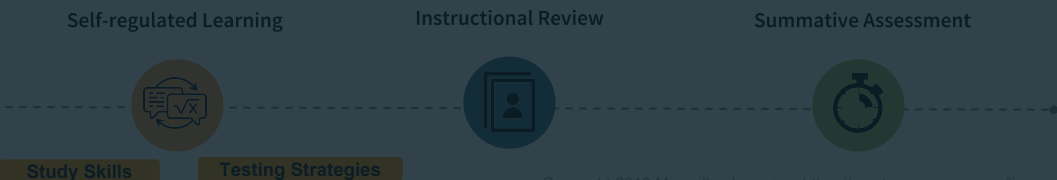
## DURING CLASS



## AFTER CLASS



## END OF UNIT



## EXPLANATION

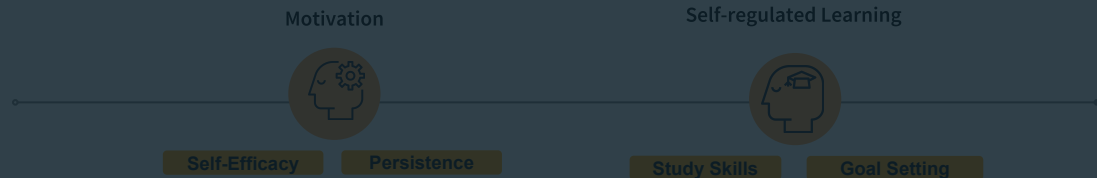
This stage in the Learning Model is focused on what students should do during an active learning class.

### During class, students should:

- Participate in an active and/or constructive lecture by responding to questions and generating ideas.
- Participate in integrated formative assessment, so that the instructor can make adjustments and provide interventions in real time.
- Participate in a reflective exercise at the end of class to assess their own understanding and provide insight to the instructor about ongoing learner issues/concerns after the class meeting.



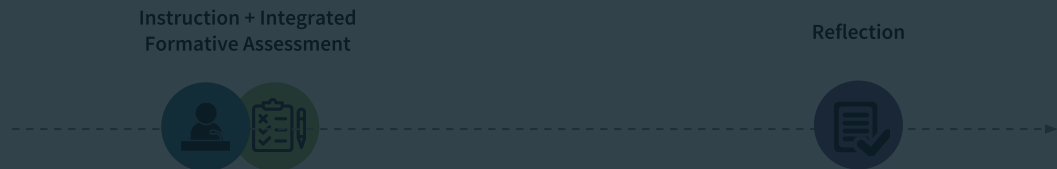
## BEGINNING OF TERM And throughout



## BEFORE CLASS



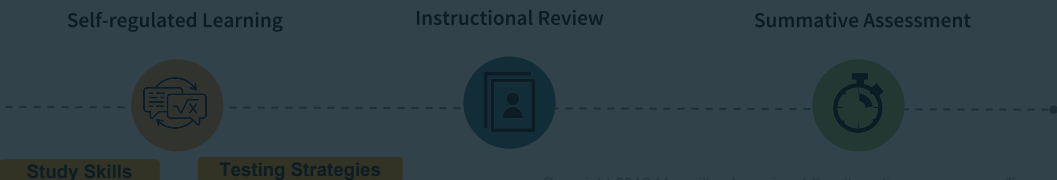
## DURING CLASS



## AFTER CLASS



## END OF UNIT



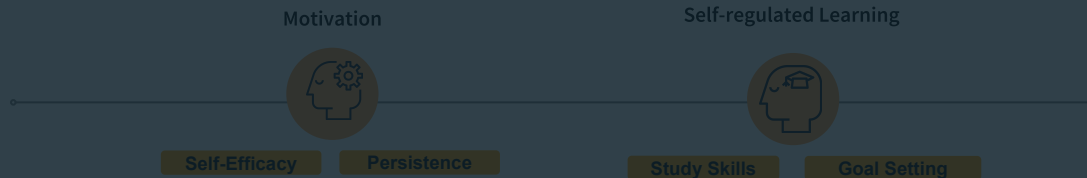
## EXPLANATION

This stage of the Learning Model is focused on after class.

### After class, students should:

- Complete additional formative assessment (e.g., homework) that comprehensively addresses learning goals specific to this segment of instruction -- revisiting things covered before, in class, and beyond.
- Reflect on their learning and any lingering questions or areas for improvement.

## BEGINNING OF TERM And throughout



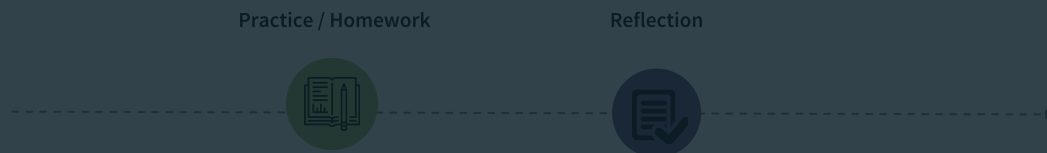
## BEFORE CLASS



## DURING CLASS



## AFTER CLASS



## END OF UNIT



## EXPLANATION

This stage of the Learning Model is focused on the end of the term.

**At the end of a module, unit, or term, students should:**

- Revisit study skills in the context of test-taking strategies.
- Access an instructional review, either through notes, revisiting instructional materials, or a scheduled lecture.
- Participate in end of unit assessments.

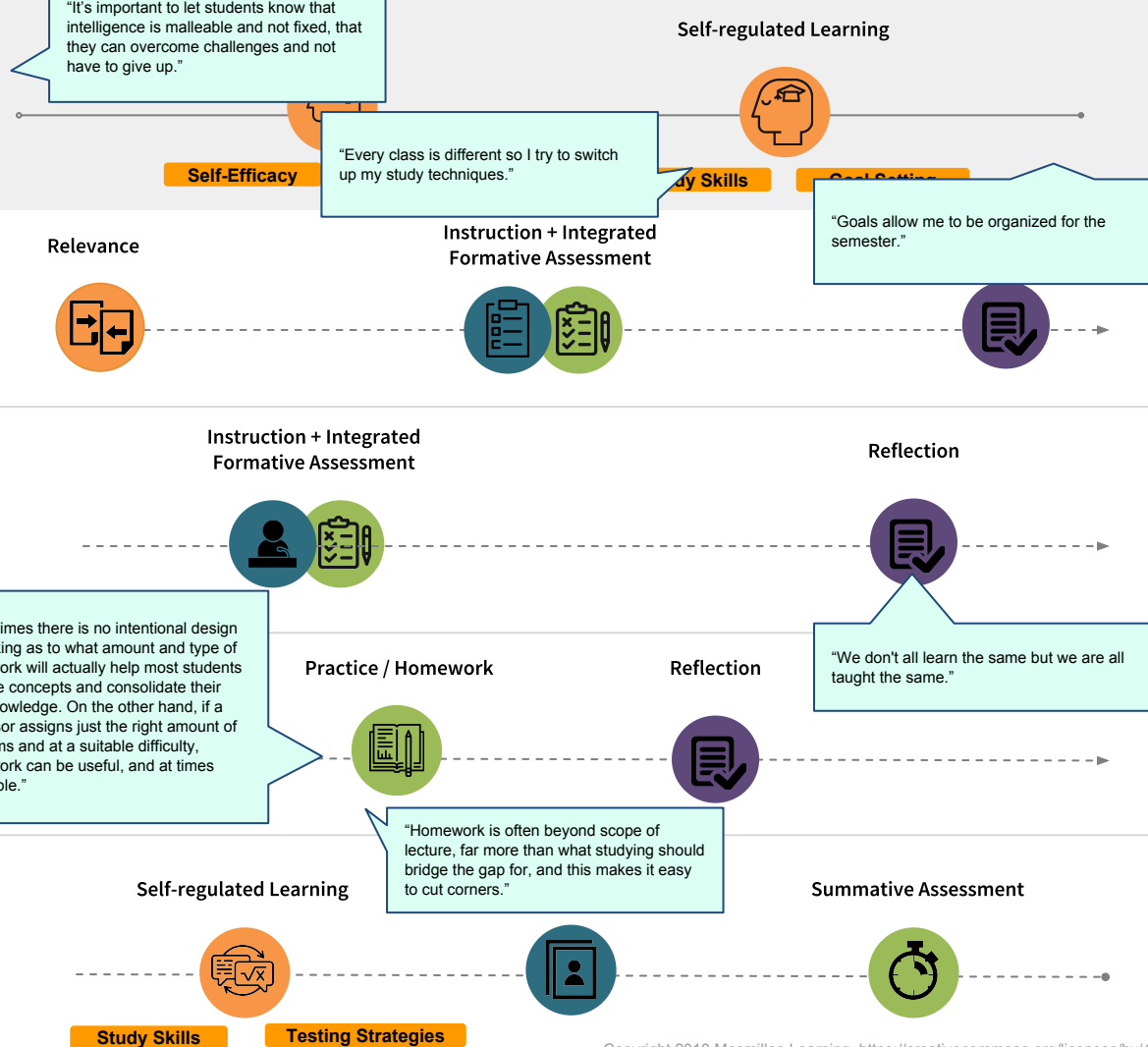
## BEGINNING OF TERM And throughout

## BEFORE CLASS

## DURING CLASS

## AFTER CLASS

## END OF UNIT



# STUDENT FEEDBACK

Our student codesigners offered many insights into the relative value of specific elements from a student perspective.

They thought that the mindset and reflection elements were the most valuable. This was partly because these ideas appealed to them, and partly because they had negative associations with other elements, including traditional "one-size fits all" lectures, unfair collaboration, and misaligned homework.

Other comments, both positive and negative, are indicated in the callouts.

## BEGINNING OF TERM And throughout

## BEFORE

## DURING CLASS

## AFTER CLASS

## END OF UNIT

### Motivation



Self-Efficacy

Persistence

### Self-regulated Learning



Study Skills

Goal Setting

"Often during a course there are segments where many students have difficulty; perhaps the material is particularly challenging. It is important to provide some kind of tenacity intervention, saying 'Don't worry if you find this really hard, a lot of people report the same thing. If you just keep going you will be fine.' " - Dr. Dede

### Instruction + Integrated Formative Assessment



### Reflection



"This reflection can focus on which parts of the material are confusing, developing questions to ask in class."  
-Dr. Dede

### Instruction + Integrated Formative Assessment



"If you bring the student along as a collaborator, you are more successful."  
- Dr. McDaniel

### Reflection



### Practice / Homework



### Reflection



"This should be an iterative cycle back to the During Class instruction. The instructor can identify common gaps in understanding and adapt instruction for next time." - Dr. Atkinson

### Self-regulated Learning



Study Skills

Testing Strategies

### Instructional Review



### Summative Assessment



# INSTRUCTOR FEEDBACK

Our Learning Research Advisory Council offered insights into the relative value of specific elements from a learning sciences and instructor perspective.

They emphasized the importance of persistence, reflection, and assessment. This feedback underscores the importance of elements that support student success, application of knowledge and skills, and data-based interventions.

Other comments, both positive and negative, are indicated in the callouts.

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