



# Foundations for Implementation – Day 3

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Rev 5/4/23 (ce)

# Opening

CPM Learning Event Series, Day 3



Sign in and make a name tag.

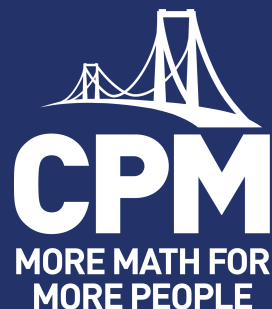


Pick a team sort card.  
Find other participants that match your card.

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# Foundations for Implementation

## Day 3



Name  
[email@cpm.org](mailto:email@cpm.org)



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@CPMmath

#MoreMathforMorePeople

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# Opening

## Housekeeping



- + Bathrooms
- + 8:00 AM – 4:00 PM
- + Breaks scheduled and as needed
- + Lunch
- + Parking Lot poster
- + Supply/resource table



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# Opening

## Icebreaker



### Six-Word Memoir

1. **Write** your autobiography in exactly six words.
2. **Share** your autobiography with your team.



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# Outcomes and Agenda

## Effective Mathematics Teaching Practices



**Build procedural fluency from conceptual understanding.**



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# Outcomes and Agenda

## Outcomes



## Participants:

- + learn about the connection between mixed, spaced practice and assessment practices;
- + finalize an Implementation Action Plan to prepare to implement CPM in the classroom;
- + plan a lesson using the Launch-Explore-Closure structure to support multiple modes of instruction and formative assessment; and
- + make connections between NCTM's Effective Mathematics Teaching Practices and the design of CPM curriculum to support mixed, spaced practice.

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# Outcomes and Agenda

## Agenda



## Focus: Mixed, Spaced Practice



- + Opening
- + Chapter 2 Snapshot
- + Research Connections
- + Thread
- + Content Module/Chapter Walkthrough



- + Assessment Beliefs
- + Assessment Practices
- + Purposefully Planning a Lesson
- + Implementation of CPM
- + Closure



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# Outcomes and Agenda

Feedback – Day 2



## Questions and Wonderings...

- + Fill in from feedback forms
- +
- +

- + Fill in from feedback forms
- +
- +

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# Outcomes and Agenda

## Equity Principles



- + The goal of teaching is to help all students transition from dependent to independent learners.
- + Relationships are of vital importance.
- + Student uniqueness is an asset, not a deficit.
- + Reflection is a crucial part of growth.

**CPM uses these principles to guide our vision and mission of More Math for More People.**

# Chapter 2 Snapshot

## Team Roles



### Assign team roles:

Count the number of letters in your first and last name



**Facilitator** – Fewest letters



**Resource Manager** – Second largest number of letters

**Recorder/Reporter** – Third largest number of letters

**Task Manager** – Most letters

# Chapter 2 Snapshot

## Team Jigsaw



**Facilitator** – Read the **Chapter Overview** through **Where Is This Going?**  
(Chapter 2 Opening - Teacher Notes)



**Resource Manager** – Read the **Suggested Assessment Plan**  
(Chapter 2 Opening - Teacher Notes)



**Recorder/Reporter** – Read the **Learning Log entries** and **Math Notes**  
(Chapter 2 Closure - Student Lesson Tab)



**Task Manager** – Read the **Mathematical Vocabulary** and **Closure Problems**  
(Chapter 2 Closure - Student Lesson Tab)

Your goal is to “**tell the story**” of the chapter through your assigned lens.

# Chapter 2 Snapshot

## Debrief



**Task:** Take turns to “**tell the story**” of the chapter through your assigned lens.



**Facilitator** – **Chapter Overview** through **Where Is This Going?**  
(Chapter 2 Opening - Teacher Notes)



**Resource Manager** – **Suggested Assessment Plan**  
(Chapter 2 Opening - Teacher Notes)



**Recorder/Reporter** – **Learning Log entries** and **Math Notes**  
(Chapter 2 Closure - Student Lesson Tab)



**Task Manager** – **Mathematical Vocabulary** and **Closure Problems**  
(Chapter 2 Closure - Student Lesson Tab)

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# Chapter 2 Snapshot

Math Lesson: [CC3 Lesson 2.1.9](#)

More Solving Equations



## Math goal:

Solve equations and consider unique solutions using the mathematical structure of an Equation Mat.



## Team goal:

Work as a team to clarify the steps of solving equations.

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## Chapter 2 Snapshot

Math Lesson: Debrief – CC3 Lesson 2.1.9  
More Solving Equations



How did the purposeful use of team roles, circulation, and/or STTS help structure this lesson?

How did the closure activity connect to the lesson goal?

What part of the lesson provided opportunities for the teacher to formatively assess all students?

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# Chapter 2 Snapshot

## Study Team and Teaching Strategies



### Elevator Talk

- + Each individual/partner/team is given a topic or concept.
- + Students summarize the topic or concept into a brief presentation.
- + Teacher facilitates a share out of presentations.



# Chapter 2 Snapshot

## Elevator Talk



### Elevator Talk

*What changes might you need to be mindful of as you begin to implement CPM?*



**Facilitator**



**Task Manager**



**Recorder/Reporter**



**Resource Manager**



# Research Connections

## Mixed, Space Practice

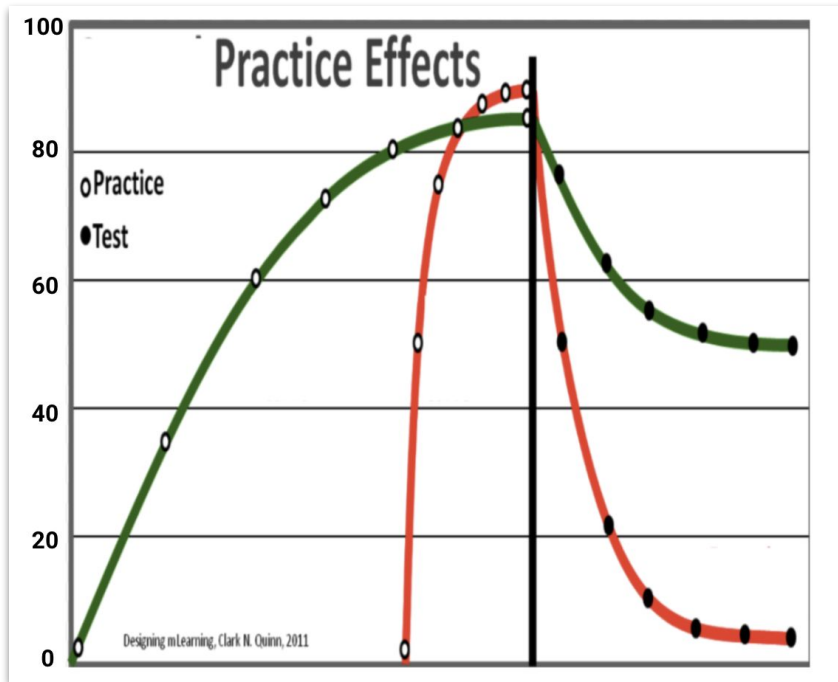


### Notice and Wonder

What do you notice?

What do you wonder?

**Share** what you notice and wonder with your teammates.



Thalheimer, W. (2006, February). *Shaping learning events over time: What researchers say*. A Work-Learning Research Incorporated.

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# Research Connections

## Reading Protocol



### Six-Word Synthesis

While reading the article:

- + **Read** and **mark up** the text to gain an understanding of the ideas and applications.
- + **Synthesize** your ideas about the reading into only six words. Your six words could be a sentence, phrase, connection, personal learning, or an “aha”.
- + **Record** your six words for presentation to the group.
- + **Connect** your six words to content in the text.

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# Research Connections

Mixed, Space Practice – Why?



## CPM's 2023 Research Base Executive Summary Mixed, Spaced Practice

### eBook:

Click on the **Teacher Tab** on the left side

Next choose **Program Description**

Select the tab **Research Summary**

Click on Mixed, Spaced Practice (**Executive Summary**)

# Research Connections

## Six-Word Synthesis



**Focus** on the **blue boxes:**

*“CPM infers from this research that...”*

While reading the article:

- + **Read** and **mark up** the text to gain an understanding of the ideas and applications.
- + **Synthesize** your ideas about the reading into only six words. Your six words could be a sentence, phrase, connection, personal learning, or an “aha”.
- + **Record** your six words for presentation to the group.
- + **Connect** your six words to content in the text.

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# Research Connections

Debrief: Mixed, Spaced Practice – Why?



**Share** your six-word synthesis with your team members.



**Facilitators** decide who shares first and make sure everyone in the team has a chance to share.

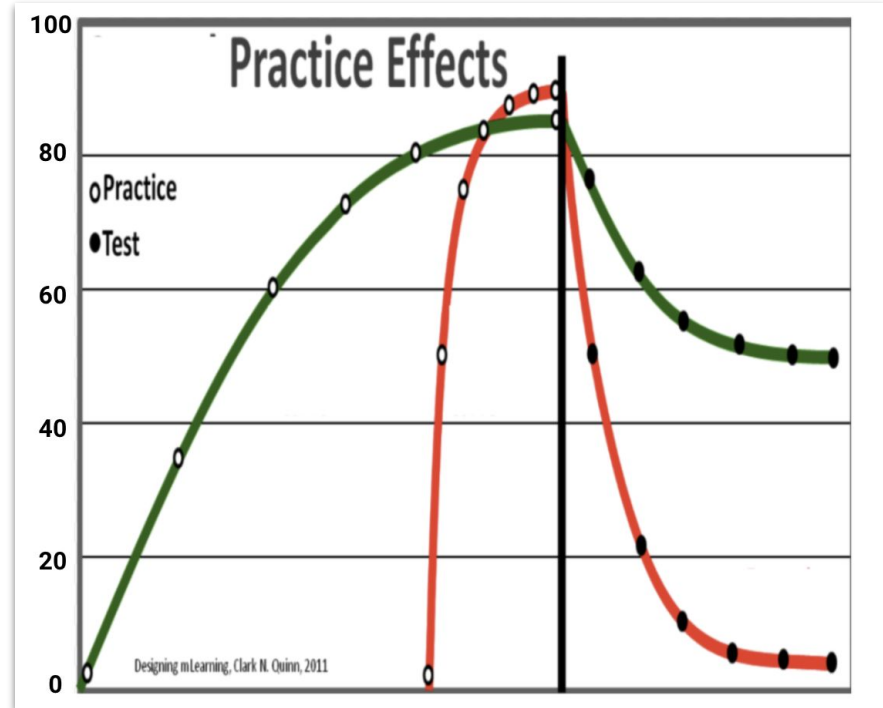
# Research Connections

## Practice Effects



### Think-Pair-Share

In light of the reading,  
**interpret** the graph.



Thalheimer, W. (2006, February). *Shaping learning events over time: What researchers say*. A Work-Learning Research Incorporated.

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# Research Connections

## Three Pillars of CPM



## Attaining Long-Term Knowledge

**C**ollaborative Learning

**P**roblem-Based Learning

**M**ixed, Spaced Practice





# Research Connections

## CPM's Guiding Principles



Students deepen their mathematical understanding when they are engaged with concepts over time.



Students have significantly better retention of mathematics when concepts are grounded in context.



Students' involvement in effective study teams increases their ability to learn mathematics.



Effective study teams are guided, supported, and summarized by a reflective, knowledgeable teacher.



Assessing what students understand requires more than one method and more than one opportunity.



When students and stakeholders embrace a growth mindset, they understand that mastery takes time, effort, and support.

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# Research Connections

## Mixed, Spaced Practice – How?

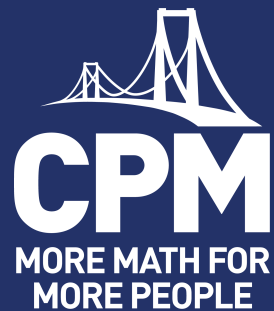


How is mixed, spaced practice integrated into the CPM curriculum?

- + Chapter sections
- + Problems in the lessons
- + Review & Preview
- + Chapter closure
- + Summative & team assessments
- + Course threads
- + **Vertical threads through courses**

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Take a break



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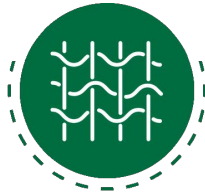


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# Thread

## Algebra Tile Thread



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# Content Module/Chapter Walkthrough

## New Teams



**Please sit together in teams with same-course teachers.**

Options: All 4th year courses (Precalculus, Statistics, Calculus) at one table.

Co-Teachers, join the team of the course you teach or support

### Assign team roles:



**Facilitator** – Most states lived in



**Resource Manager** – Second most states lived in



**Recorder/Reporter** – Third most states lived in



**Task Manager** – Fewest states lived in

# Content Module/Chapter Walkthrough

## Chapter Walkthrough



How will you support your students in reaching the goal of the lesson?

How will you use team roles in this lesson to support student learning?

How will you use Study Team and Teaching Strategies in this lesson to support student status in their teams?

What expectations will you set for students to maintain effective collaboration?

# Content Module/Chapter Walkthrough

## Additional Supports with Content



### Content Sessions

July 18 or Aug 8 ( CC1, CCA, Int I, Pre-Calc)

July 19 or Aug 9 ( CC2, CCG, Int II, Calc)

July 20 or Aug 10( CC3, CCA2, Int III, Stats)

**\*\* Chapter 1 is at 8am PT\*\***

**\*\* Chapter 2 is at 10:00am PT\*\***



Start: Jul 18, 2023  
End: Jul 18, 2023

**CC1 CONTENT SESSION - CH 2 - JULY**

☐ Virtual Learning Events

July 18, 2023 from 9:30 am to 10:30 am Pacific Time.

Content Sessions provide participants the opportunity to ...

# Assessment Beliefs

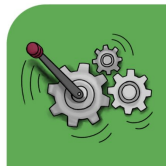
## NCTM Belief Sort



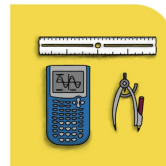
With your team, sort the 12 beliefs on a continuum



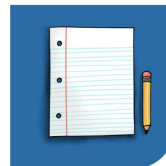
**Facilitator** – Ask a team member to read their statement aloud and discuss it as a team.



**Task Manager** – Ask everyone to justify their reasoning as they place the slips on the continuum.



**Resource Manager** – Get the materials for the sort for your team and deal out the slips to your teammates.



**Recorder/Reporter** – Write two sticky notes for your spectrum labeled “Less Productive” and “More Productive”.



# Assessment Beliefs

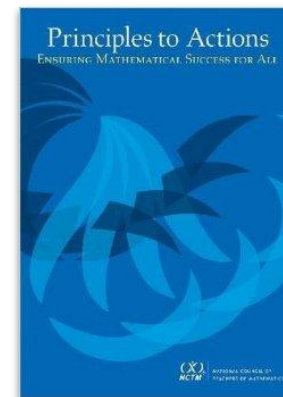
## Beliefs about Mathematics Assessment



CPM is in complete agreement with and supports NCTM's beliefs about mathematics assessment as explained in Principles to Actions (NCTM, p. 91-92).

Beliefs about mathematics assessment

Unproductive beliefs	Productive beliefs
The primary purpose of assessment is accountability for students through report card marks or grades.	The primary purpose of assessment is to inform and improve the teaching and learning of mathematics.
Assessment in the classroom is an interruption of the instructional process.	Assessment is an ongoing process that is embedded in instruction to support student learning and make adjustments to instruction.
Only multiple choice and other “objective” paper-and-pencil tests can measure mathematical knowledge reliably and accurately.	Mathematical understanding and processes can be measured through the use of a variety of assessment strategies and tasks.
A single assessment can be used to make important decisions about students and teachers.	Multiple data sources are needed to provide an accurate picture of teacher and student performance.
Assessment is something that is done to students.	Assessment is a process that should help students become better judges of their own work, assist them in recognizing high-quality work when they produce it, and support them in using evidence to advance their own learning.
Stopping teaching to review and take practice tests improves students' performance on high-stakes tests.	Ongoing review and distributed practice within effective instruction are productive test preparation strategies.



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# Assessment Beliefs

## Beliefs about Mathematics Assessment



*“It is important to note that these beliefs should **not be viewed as good or bad**. Instead, beliefs should be understood as **productive** when they **support effective teaching and learning** or **unproductive** when they **limit student access** to important mathematics content and practices.”*

(NCTM, 2014, p. 91)

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# Assessment Beliefs

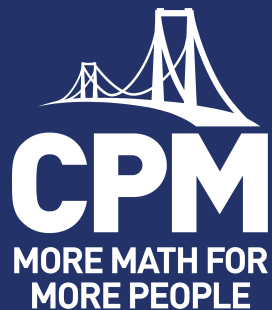
## Resorting Teams



Insert information to support your re-sort that honors visibly random teaming.

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Lunch Time



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# Assessment Practices

## Welcome Back



### Team Task:

Create as many words as possible for 4 minutes and determine scores.

1. The letters must each connect to the previous letter by a side or a corner.
  - a. “Fit” and “Finite” count, but “Few” does not.
2. Each word is worth the square of the number of letters it contains.
  - a. A one letter word is worth one point (1 x 1),
  - b. A four letter word is worth 16 points (4 x 4).

TEAM BOGGLE				
F	I	N	E	I
J	T	I	E	O
D	E	S	E	L
W	L	T	F	I
I	D	U	E	N

---

# Assessment Practices

## Formative Assessment



**Authentic assessment begins with teachers actively circulating** the classroom while students work on mathematics in small teams. As they move strategically around the room, teachers are **carefully listening** to conversations and **asking deliberate questions** that require students to describe, analyze, make inferences, or generalize.

(CPM's Position Paper on Assessment)

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# Assessment Practices

## CPM's Principle of Assessment – Opening



The CPM materials have been designed to support mastery over time through a student-centered, problem-based course, and this approach supports students' different learning styles. But when changing the materials and changing the methodology, teachers must also change their assessment practices.

(CPM's Position Paper on Assessment)

# Assessment Practices

## Study Team and Teaching Strategies



### Numbered Heads

- + Students number off 1–4 in their team.
- + Each team member is assigned a team role, task, or problem number that they are responsible for.
- + Teacher circulates, stops at a group, and asks a random number to answer a “check for understanding” question.
- + Teacher can use a random number to have students share out at the end of class.



# Assessment Practices

## Assessment Tab



### Numbered Heads

1. Count off 1–4 in your team.



### Jigsaw

2. Everyone read the Guidebook tab
  - #1: Read the Individual tab
  - #2: Read the Team tab
  - #3: Read the Presentations tab
  - #4: Read the Observations tab

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# Assessment Practices

## Debrief - Assessment Tab



1. Start with #1 and take turns **sharing out** about your reading section.
2. **Compromise** on your team's biggest question about assessments.
3. One selected team member will **share out** your team's question.

# Assessment Practices

## Summative Assessment – Focus Question



*How does the design of mixed, spaced practice provide opportunities for teachers to develop fair and balanced summative assessments for students?*



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# Assessment Practices

Resources to Guide Summative Assessments



Review & Preview Problems

Checkpoint Problems

Chapter Closure Problems

Summative and Team Assessments

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# Assessment Practices

Tools to Support Building Summative Assessments



Suggested Assessment Plan

Sample Tests

Assessment Bank

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# Assessment Practices

Tools to Support Building Summative Assessments



## Suggested Assessment Plan for Individual Tests:



current chapter ( $\approx 40\%$ )

previous chapters ( $\approx 60\%$ )

consider waiting on assessing...

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# Assessment Practices

## CPM Principles of Assessment



1. Teachers need to be involved in the crafting of assessments.
2. Teachers need to read and work through all test problems.
3. Students should be assessed only on content with which they have been meaningfully engaged.
4. Formative assessment is a learning experience for students and teachers.
5. While teachers are required to evaluate and assign grades, grading should be flexible.

---

# Assessment Practices

## Principle Three



### THINK-INK-SHARE

*How might Principle of Assessment #3 guide your summative assessment practices?*

#### **Principle of Assessment #3:**

Students should be assessed only on content with which they have been meaningfully engaged, and with which they have had ample time to make sense of.



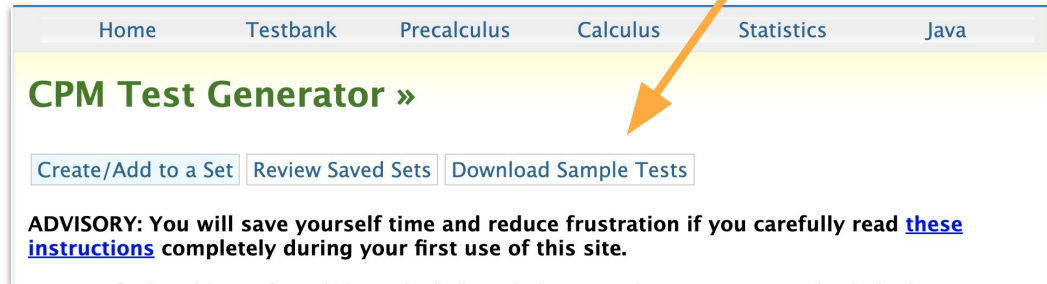
# Assessment Practices

## Chapter 2 Individual Test



### eBook (CC3) :

1. Upper right hand corner → click on **CPM Links**
2. Next choose **Assessment**
3. Select **Download Sample Tests**
4. Click on **Core Connection 3**
5. Click on **Download** Chapter 2 Individual Test
6. Click on **Download** for the PDF



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# Assessment Practices

## Chapter 2 Individual Test



Using the sample Chapter 2 individual test from the CPM Assessment site, do the following in your team:

- + **Divide** up the problems amongst your team.
- + **Read** and **work** through your assigned problems carefully.
- + Clearly **show** what kind of response is expected for each problem.
- + **Check** to see that there are no errors.

### eBook (CC3) :

Upper right hand corner → click on **CPM Links**

Next choose **Assessment**

Select **Download Sample Tests**

Click on **Core Connection 3**

Click on **Download** Chapter 2 Individual Test

Click on **Download** for the PDF

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# Assessment Practices

## CPM Principle of Assessment



### Review:

- + Opening paragraphs.

### Read:

- + Principle of Assessment #1: *Teachers need to be involved in crafting of assessments.*
- + Principle of Assessment #2: *Teachers need to read and work through all assessment items carefully before giving them to students, making sure it is clear what kind of response is expected and that there are no errors.*

### eBook:

Click on the **Teacher Tab** on the left side

Next choose **Assessment**

Select the tab **Guidebook** → open **PDF** "CPM Principles of Assessment"

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# Assessment Practices

## Debrief - CPM Principles of Assessment



1. Teachers need to be involved in the crafting of assessments.
2. Teachers need to read and work through all test problems.
3. Students should be assessed only on content with which they have been meaningfully engaged.
4. Formative assessment is a learning experience for students and teachers.
5. While teachers are required to evaluate and assign grades, grading should be flexible.

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# Assessment Practices

## Assessment Analysis



Your team will be assigned **one of the following lenses** to analyze the Chapter 2 Individual Test that you completed earlier.

**Teams #1 and #5:** Chapter 2 **Assessment Plan**

**Teams #2 and #6:** Chapter 2 **Closure Problems & Learning Logs**

**Teams #3 and #7:** Chapter 2 **Review & Preview Problems**

**Teams #4 and #8:** Chapter 1 and 2 **Lessons (new vs. review)**

# Assessment Practices

## Assessment Analysis Focus



Using your lens, answer the following. Be prepared to defend your answer.

1. Are all of the questions appropriate at this time?
2. What supports will be needed for all students to have success?

<b>Teams #1 and #5:</b>	Chapter 2 <b>Assessment Plan</b>
<b>Teams #2 and #6:</b>	Chapter 2 <b>Closure Problems &amp; Learning Logs</b>
<b>Teams #3 and #7:</b>	Chapter 2 <b>Review &amp; Preview Problems</b>
<b>Teams #4 and #8:</b>	Chapter 1 and 2 <b>Lessons (new vs. review)</b>



# Assessment Practices

## Study Team and Teaching Strategies



### Swapmeet

- + When a team task is partially finished, one pair from each team rotates to the next team.
- + Pairs from the two teams exchange ideas, solutions, thinking, etc.
- + Pairs return to their original teams and each pair shares what they learned from other teams.
- + Students continue to work as a team.

# Assessment Practices

## Debrief - Assessment Analysis



**Swapmeet**



**Recorder/Reporter**

&



**Task Managers**

will travel.

**Share** your analysis of the Chapter 2 Individual Test through your lens.



# Assessment Practices

## Teacher Tips



Assessments  
should focus  
on the big  
ideas, not all  
the ideas.

Assessments  
should be  
flexible.

Assessments  
should balance  
skills with  
problem-solving.

Assessments  
should honor  
that mastery  
tasks time,  
effort, and  
support.

# Assessment Practices

## Learning Log Reflection



### Title: Creating Summative Assessments

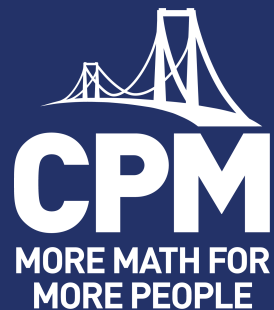
*How will I develop fair and balanced summative assessments that include the principles of mixed, spaced practice?*

**CPM Guiding Principle:** Students deepen their mathematical understanding when they are engaged with concepts over time.



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Take a break



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# Purposefully Planning a Lesson

## Purposefully Planning a CPM Lesson



**Go to:** [cpm.org/newsletter](https://cpm.org/newsletter)

**Scroll** down and **click** on Article Archives

**Click** on May 2018

**Click on:** “Purposefully Planning a CPM Lesson” (Hayes, 2018)

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# Purposefully Planning a Lesson

## Purposefully Planning a CPM Lesson



**Read:** “Purposefully Planning a CPM Lesson” by John Hayes



# Purposefully Planning a Lesson

## Chapter Snapshot Connections



**Facilitator** – Read the **Chapter Overview** through **Where Is This Going?**  
(Chapter 2 Opening - Teacher Notes)



**Resource Manager** – Read the **Suggested Assessment Plan**  
(Chapter 2 Opening - Teacher Notes)



**Recorder/Reporter** – Read the **Learning Log entries** and **Math Notes**  
(Chapter 2 Closure - Student Lesson Tab)



**Task Manager** – Read the **Mathematical Vocabulary** and **Closure Problems**  
(Chapter 2 Closure - Student Lesson Tab)

CONNECTIONS

Your goal is to “tell the story” of the chapter through your assigned lens.

### PURPOSEFULLY PLANNING A CPM LESSON

John Hayes, Eagle River, WI, JohnHayes@cpm.org

As a member of the CPM Coaching Cadre I plan lessons with teachers on a daily basis. These are the steps I like to use while planning a lesson; you can use these as well.

Start with the CPM Lesson Plan sheet from the Phase 1 workshop. Fill out the header information to get in the groove before you really get into some deep thinking.

**Suggested step 1:** Fill in the Key Concept area, but before you just copy the lesson objective from the Teacher Notes, think about this question: What is the one thing you want your students to know or do by the end of the lesson? This section is your lesson goal, and I think in most cases you may want to limit this to one primary goal. Do not worry if you have secondary goals; they will appear in other areas of the planning sheet.

**Suggested step 2:** Once you know the goal, plan the most important part of the lesson next, which would be closure. Decide what strategies (STS) you are going to use to get your students to think about the lesson goal before they leave your room. Most importantly, give your students the time and the tools to reflect and discuss the goal before you start telling them, with a whole class discussion, why it is important.

**Suggested step 3:** The third thing you might plan is the Lesson Launch. If you know the closure activity, your lesson launch should set the stage to get your students to “wonder” about the closure and goal. This part might be a reflection or STS that leaves your students with more questions than answers. It also might be used to remind students of things they have already learned. To be honest, I think having your students discuss and think about the closure, when they do not have all the answers,

builds tension and makes the math story more exciting for them. Another good idea is to engage them with writing during this step. It can be easier to keep them focused throughout the lesson if they are reflecting and writing as soon as possible. A Think-Ink strategy can also be effective for holding your students more accountable. If you have students that may do more copying of teammates solutions rather than thinking for themselves, try more independent thinking than *inking* strategies.

goals mentioned previously, or you may ask targeted questions about the Standards for Mathematical Practice (*How can you make a table argument for that solution?*). The planning you do for your questioning should be connected to your lesson goal.

**Suggested step 4:** The fifth part you may want to think about is your formative assessment. You check for understanding with your Lesson Launch. You check for understanding

CPM Lesson Plan		TE page #	ST page #	Date
Key Concept:	Study Team & Teaching Strategies: List problem & with STS/STP			
Mathematical Practices:				
Core Problem:				
Pocket Questions to Ask students:	Team Roles - Who is Doing What?		Review/Preview Problems	
Lesson Launch: What part of the lesson can be used to launch? How? Who? What? What? What?			Formative Assessment Plan	
				Closure (time needed):

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**Suggested step 4:** You will spend a majority of the lesson time circulating and asking Pocket Questions. This is what you are planning for that middle chunk of the lesson that focuses your students' thinking toward your end goal: writing and anticipating questions. These questions might be questions the teacher asks, but they also might be questions that you want your students to ask. For example, the lesson's Discussion Questions may find their way into your Pocket Questions. You may also find yourself asking questions about those secondary

with your Pocket Questions. You check for understanding with your Closure. All three areas are tied to your lesson goal. Now what action are you or your students going to take when the understanding is not present? This might be a good time to explicitly lay out an STS that is going to support a particular part of a lesson, but it could also be an action that you, the teacher, are going to take to support individual students or teams. For example, perhaps you require a team to go back to a problem they did yesterday, while you circulate one more lap. Perhaps you do

*continued on page 5*

# Purposefully Planning a Lesson Template





## Lesson Plan

Standard(s):  
 Materials Prep:

**Pre-Planning Reflection Questions:**

☐ Did I work all the problems, including the Review & Preview?  
☐ What mathematics is being learned?

☐ How does it relate to what has already been learned?  
☐ Where are these mathematical ideas going?

<b>Mathematical Goal of the lesson:</b> <i>What do I expect my students to be able to do or know by the end of this lesson?</i>	E X P L O R E	<b>Study Team &amp; Teaching Strategies and Reading Strategies:</b> <i>List problem # with strategy</i>
<b>Core Problems:</b> <i>Is there a particular core problems that would that support my goal?</i>		<b>Team Roles – Who is Doing What:</b> <i>How can I use roles to improve my class management and make the math accessible to all students?</i>
<b>Pocket Questions to ask as I circulate:</b> <i>Is there a question I could ask to see how my students are thinking about the Math goal?</i>		<b>Formative Assessment Plan:</b> <i>What STTS will I use when some of my students have not attained the math goal?</i>
<b>LESSON LAUNCH:</b> <i>Which part of the existing lesson can be used to launch? How? Who (students/teacher) is doing what?</i>		<b>CLOSURE (time needed):</b> <i>How can I get my students to reflect on the Math goal?</i>
		<b>Review &amp; Preview Problems:</b>

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MORE MATH FOR MORE PEOPLE

Go to **PL Portal**  
 Click on **your name**  
 Go to **File Cabinet**  
 Click on **Foundations for Implementation**  
 Click on **In-Person**  
 Click on **Days 1-3 Resources**  
 Click on **Link to CPM Lesson Plan Template**

---

# Lesson Planning

## Planning a Lesson



1. **Choose** a partner.
2. **Choose** a lesson from Section 2 of Chapter 1 or Chapter 2.
3. **Plan** the lesson.





---

# Lesson Planning

## Planning a Lesson



### To do:

1. **Read** the Teacher Notes.
2. **Plan** your lesson following the 6 Steps from the article:
  - a. Determine the math goal for the lesson.
  - b. Decide the closure for the lesson.
  - c. Decide how to launch the lesson.
  - d. Prepare pocket questions.
  - e. Formative assessment: How will you check for understanding?
  - f. Team roles: How will you incorporate these?
3. **Include** at least 1 Study Team and Teaching Strategy.

# Implementation of CPM

## Implementation Action Plan



Prompts:

1. **My plan** to manage student work that justifies procedural understanding from conceptual understanding is \_\_\_\_\_.  
At least **one actionable** step I will commit to is \_\_\_\_\_.
2. **My plan** to create fair and balanced summative assessments using CPM tools and resources is \_\_\_\_\_.  
At least **one actionable** step I will commit to is \_\_\_\_\_.

# Implementation of CPM

## Study Team and Teaching Strategies



### Give One, Get One

- + Students record three ideas to share related to a certain topic.
- + Students circulate and share ideas.
- + For each idea the student gives, they get one in return, including the name of the student who gives the idea.
- + After many ideas are gathered, the teacher asks a volunteer to read an idea from a classmate and their name.
- + The named classmate then shares the idea of another classmate and the sharing process continues.

# Implementation of CPM

## Implementation Action Plan



### Give One, Get One

- + **Find a proximity partner** to share one of the “action plans” you intend to implement.
- + **Circulate and exchange** one of your Implementation Action Plan items again with a new partner.
- + **Repeat** one last time with a third partner.

# Implementation of CPM

## Implementation Action Plan – Finalize



**Use** the following resources as you finalize your Implementation Action Plan

- + Learning Log reflections
- + Give One, Get One
- + SPARCC



# Implementation of CPM

## Study Team and Teaching Strategies



### Fortune Cookie

- + Teams receive sentence starters (fortunes) in an envelope.
- + Team Member 1 reads one sentence starter and shares a brief explanation.
- + Team Member 1 passes the same sentence starter to Team Member 2 to comment on Team Member 1's explanation, repeat until each team member comments on the same sentence starter.
- + When complete, Team Member 2 reads a new sentence starter and shares.
- + Team Member 2 passes the same sentence starter to Team Member 3 to comment on Team Member 2's explanation, repeat until each team member comments on the same sentence starter.
- + Continue the rotation through all sentence starters (fortunes).
- + Teacher may facilitate a Math Chat to bring closure to the **Fortune Cookie** activity.

# Implementation of CPM

## Fortune Cookie



**Resource Manager** – Get an envelope from the resource table



**Task Manager** – You are the first to **read** a “fortune”





## What have we learned?





---

# Closure

## Outcomes and Feedback



### Participants:

- + learn about the connection between mixed, spaced practice and assessment practices;
- + finalize an Implementation Action Plan to prepare to implement CPM in the classroom;
- + plan a lesson using the Launch-Explore-Closure structure to support multiple modes of instruction and formative assessment; and
- + make connections between NCTM's Effective Mathematics Teaching Practices and the design of CPM curriculum to support mixed, spaced practice.

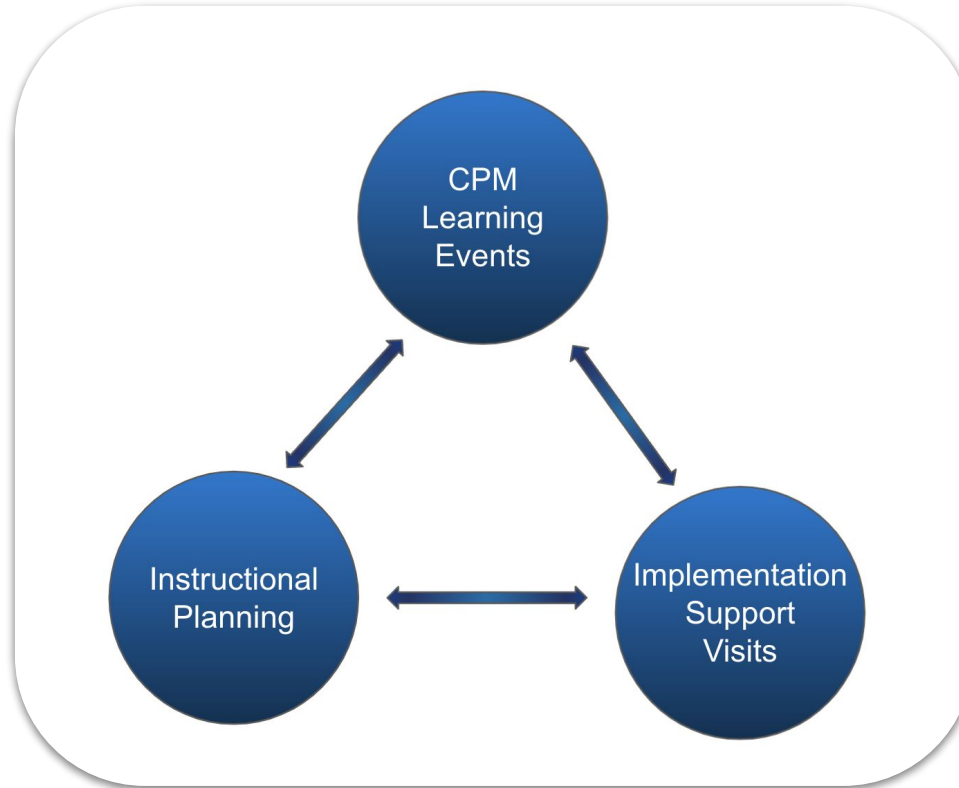
#### Learning Event Feedback:

1. Open up the learning event module.
2. Scroll down to Event Attendance and Feedback.
3. Open Day 3 Feedback.
4. Complete the Feedback form.

---

# Closure

## Triangle of Teacher Support



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# Closure

## Triangle of Teacher Support – How?



**Implementation Support Visits** are designed to connect the knowledge obtained during the learning events to the realities of the classroom.

When the teacher's learning is rooted in day-to-day operations, the quality of instruction improves over time.

**Learning Events Follow-Up Dates** are designed to provide ongoing support in the first year of implementation from an experienced CPM Teacher Leader.

# Closure

## Implementation Progress Tool



### CPM EDUCATIONAL PROGRAM Implementation Support

#### Implementation Progress Tool

This form is designed to be used by CPM teachers in their first or second year of implementation, either as a tool used to reflect independently, in combination with other teachers (perhaps in a PLC setting), or in conversation with a coach or implementation partner. It can also be used as a tool to track implementation progress, identify and celebrate accomplishments, define priorities for goal setting, and suggest opportunities for future growth. Please note that not all of these elements of teaching and learning would be observed in a single lesson.

The form is structured around the three research pillars upon which the CPM program is built and is designed in three sections.

**SECTION ONE** describes a critical component that anchors each pillar in any classroom. This area is critical for successful implementation and may require shifts in teacher belief systems.

**SECTION TWO** describes what you might observe in regards to student learning in a classroom where each pillar is intact.

**SECTION THREE** lists instructional strategies and practices that teachers use to support each pillar.

#### SUGGESTIONS FOR USING THIS TOOL:

1. First, re-read and discuss the three pillars to ensure complete understanding of them. (You may want to reference the CPM executive summary for more specifics on each.)
2. Next, consider the description of each pillar listed in section one below. Ask yourself to what extent each pillar is present in your classroom.
3. Next, use the descriptions of desired student learning in section two to analyze what is currently happening in your classroom. What do you see students doing, saying, and accomplishing that shows evidence of the pillars?
4. Finally, use section three to hone in on instructional strategies and assess both your strengths and areas for growth. At what practices do you excel? Which do you find most challenging? Where would you like to spend time building your skills? For which pillar do you need the most support?

The three pillars represent researched best practice in math education around which the CPM program is designed.

#### Collaborative Learning

Research says students learn ideas more deeply when they discuss ideas with classmates.

#### Problem-Based Learning

Research says students learn ideas more usefully for other arenas when they learn by attacking problems.

#### Mixed, Spaced Practice

Research says students learn ideas more permanently when they are required to engage and re-engage with those ideas for months or even years.

**SECTION ONE:** The pillars that represent necessary first steps in any implementation.

#### Collaborative Learning

Students and teachers are aware of the purpose for and value of working in teams, and are familiar with team norms and roles.

#### Problem-Based Learning

Students and teachers share math authority as they value and engage in productive struggle. Teachers guide without taking over the thinking.

#### Mixed, Spaced Practice

Both individual lessons and chapters are followed, using suggested pacing. Review & Preview problems are assigned and valued as an essential part of learning.

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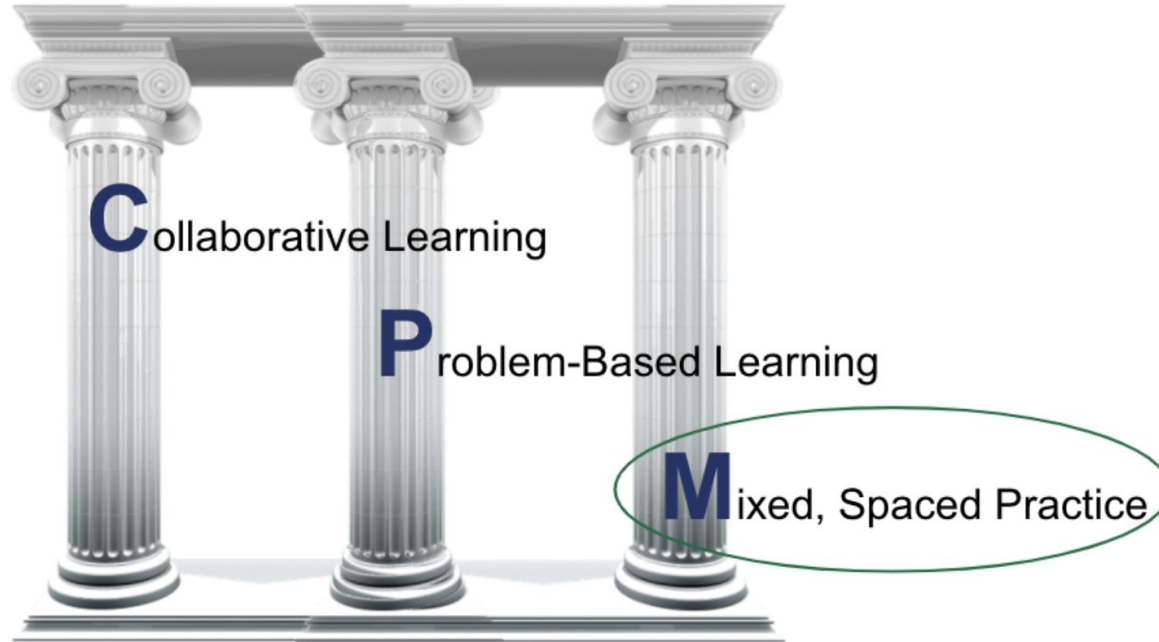
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---

# Closure

## The Three Pillars of CPM



# Research Connections

## CPM's Guiding Principles



Students deepen their mathematical understanding when they are engaged with concepts over time.



Students have significantly better retention of mathematics when concepts are grounded in context.



Students' involvement in effective study teams increases their ability to learn mathematics.



Effective study teams are guided, supported, and summarized by a reflective, knowledgeable teacher.



Assessing what students understand requires more than one method and more than one opportunity.



When students and stakeholders embrace a growth mindset, they understand that mastery takes time, effort, and support.

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# Closure

## Ignite Your Classroom



Start promptly.

Peer support expected within each team.

Active learning.

Respond to the team rather than individuals.

Circulate. Circulate. Circulate.

Closure. Closure.



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# Closure

## Teacher Tips – Implementation



# Teacher Actions that Support *Implementation*

Use the Teacher Notes as intended.

Work all the problems in the lesson ahead of time, including the Review & Preview problems.

Create purposeful lesson plans.



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# Closure

## Teacher Tips – Inclusion



## Teacher Actions that Support *Inclusion*

Intentionally  
plan lessons  
without  
lowering the  
cognitive  
demand.

Use explicit  
agreements,  
team roles,  
and STTS to  
scaffold  
discussions  
and level  
status.

Allow time for  
students to shift  
from conceptual  
to procedural  
fluency.

Develop and  
assign  
competence to  
students using  
math learning  
behaviors.

# Closure

Ignite

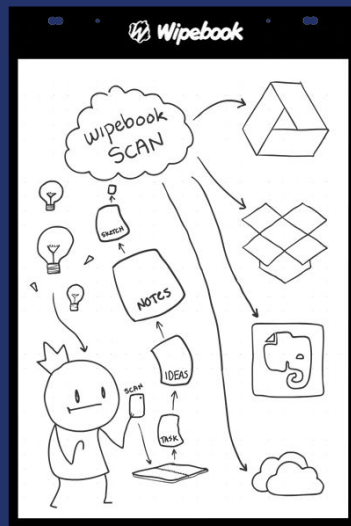
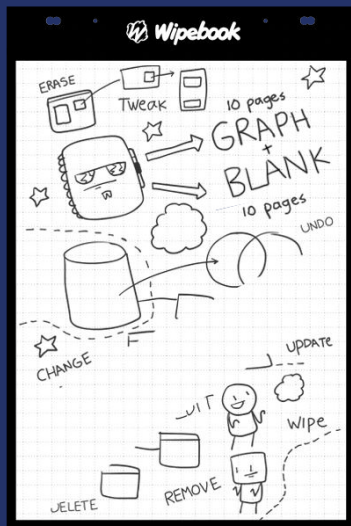


# Closure

## Professional Learning Checklist



Summer Session		Fall Semester	Spring Semester
<b>Live Learning Events</b>	<input type="checkbox"/> Register and attend: In-Person Days 1-3 <b>or</b> Virtual Sessions 1-6	<input type="checkbox"/> Register and attend: In-Person Day 4 <b>or</b> Virtual Sessions 7-8	<input type="checkbox"/> Register and attend: In-Person Day 5 <b>or</b> Virtual Sessions 9-10
<b>Content Modules</b> (On-Demand)	<input type="checkbox"/> Chapter 1 <input type="checkbox"/> Chapter 2	<input type="checkbox"/> Chapter 3 <input type="checkbox"/> Chapter _____	<input type="checkbox"/> Chapter _____ <input type="checkbox"/> Chapter _____
<b>Instructional Modules*</b> (On-Demand)	<input type="checkbox"/> 1 - Closure and Team Assessments <input type="checkbox"/> 2 - Review & Preview <input type="checkbox"/> 3 - Intentional Planning	<input type="checkbox"/> 4 - Supporting Productive Struggle	<input type="checkbox"/> 5 - Assessment Practices



- + Register and get a 20% off code for online purchases.
- + Enter to win a reusable flipchart! A winner will be chosen every Friday!



Go to [wipebook.com/cpm](https://wipebook.com/cpm)

Get 20% off anything!

Email

Send Coupon!

# Closure



- + Parking Lot

- + Attendance

Either scan the QR code

**OR**

Enter passcode in the Portal

XXXXXXX

- + Continuing Education Credit

- + **Next Steps**

Follow the schedule you set for yourself on your pacing guide.

