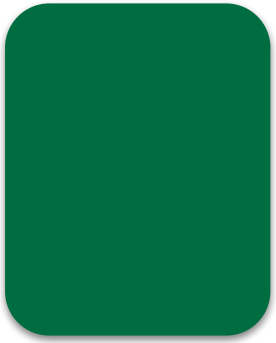
Foundations for Implementation – Session 1

Rev 6/8/23 (ce)

Welcome!

CPM Virtual Learning Series

Session Facilitators



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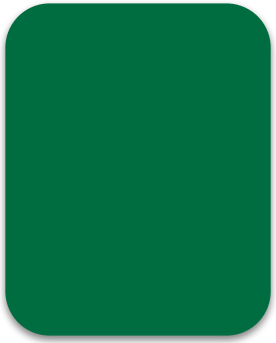

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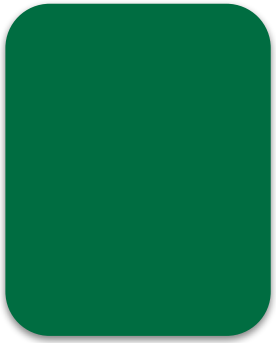
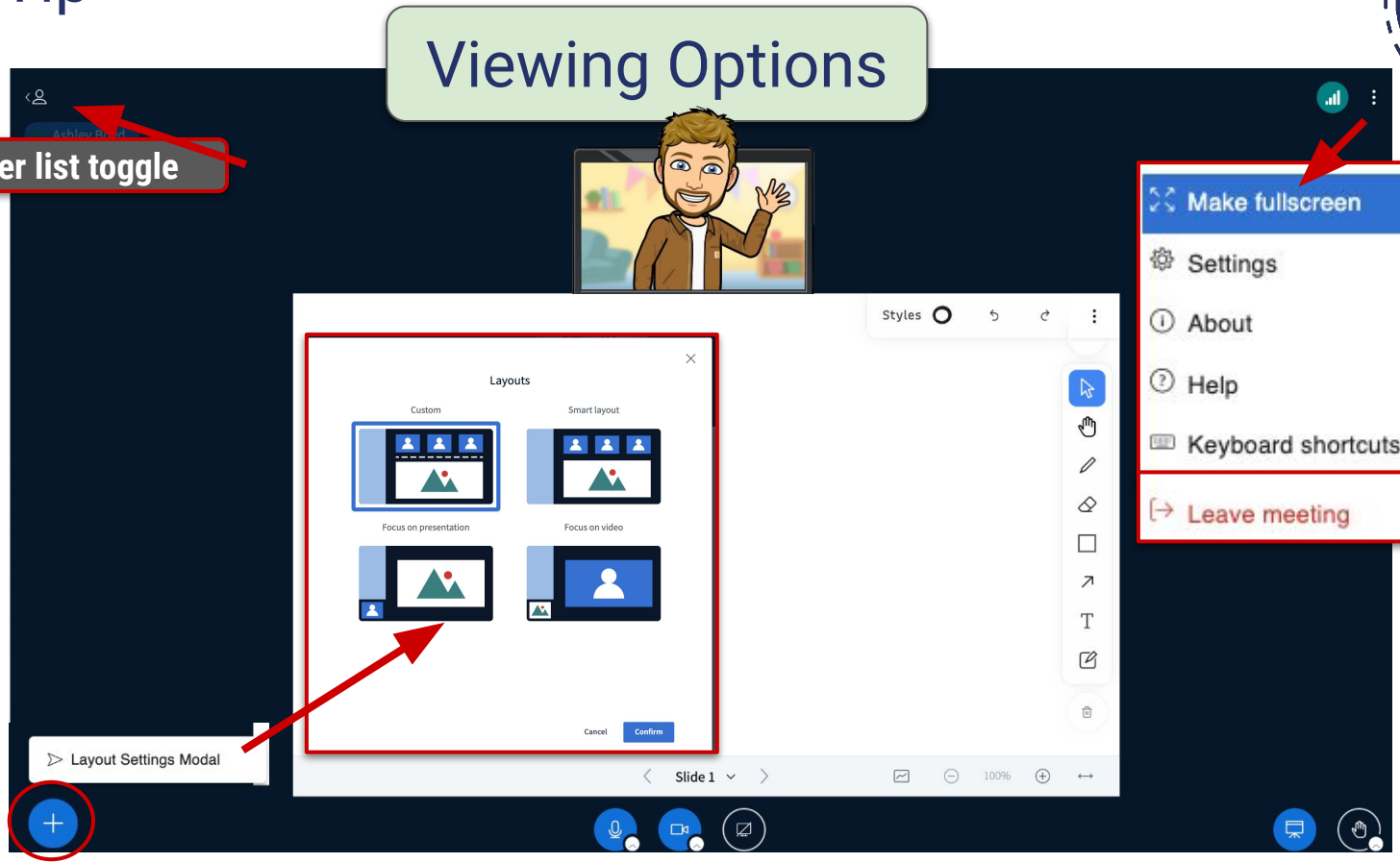


Name

Regional Professional Learning Coordinator

Tech Tip


Viewing Options
User list toggle
Make fullscreen
Settings
About
Help
Keyboard shortcuts
Leave meeting
Styles
Layouts
Custom
Smart layout
Focus on presentation
Focus on video
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Confirm
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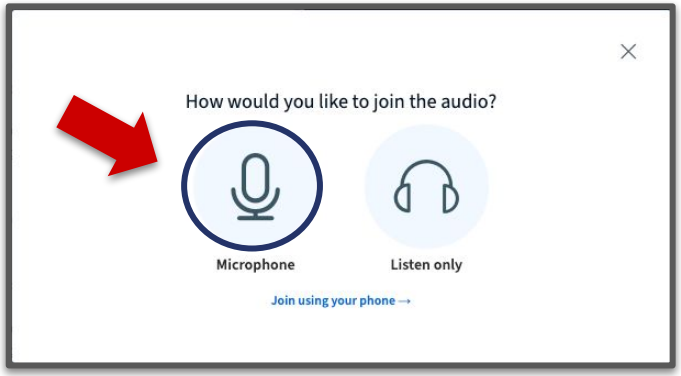
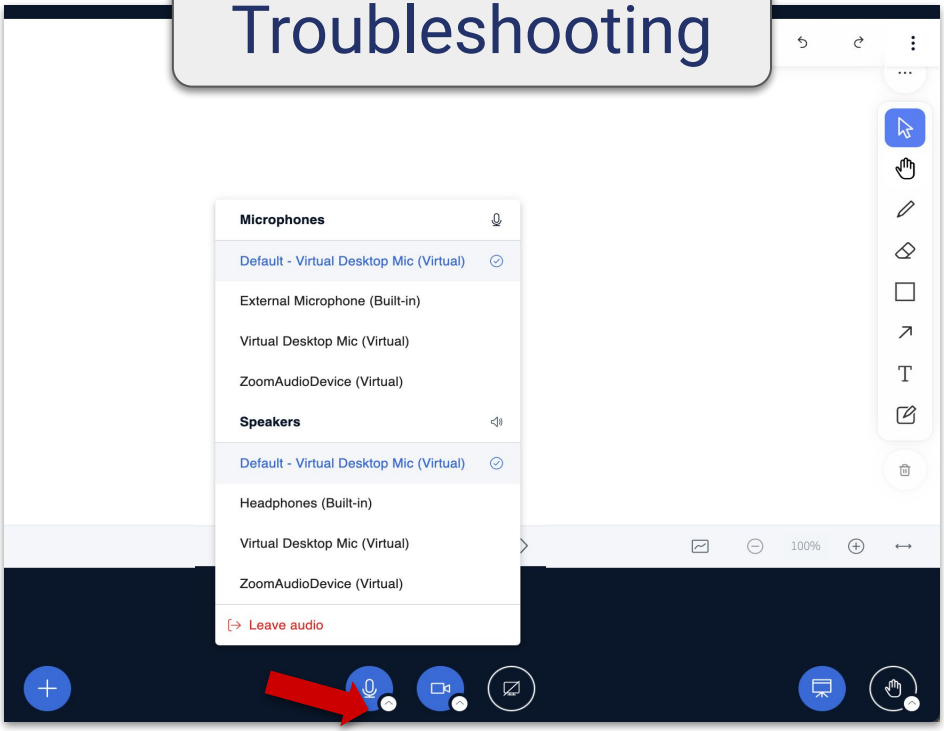
Tech Tip

Audio



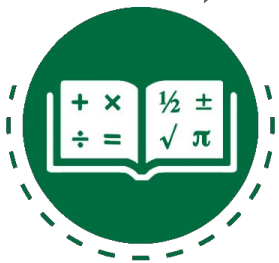
Troubleshooting



Opening

Foundations for Implementations

CPM's Professional Learning On-Demand



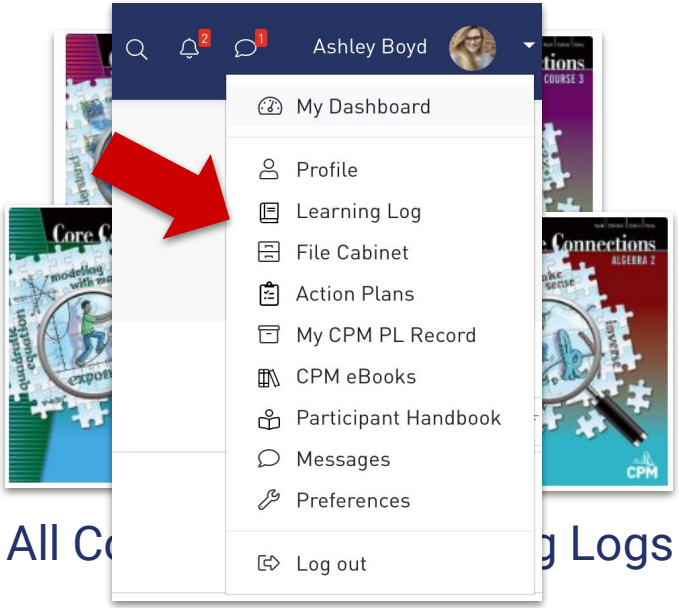
Content Modules

Instructional Modules

Opening

Learning Logs

Learning Log



All C g Logs

Opening

Outcomes

Participants will:

+ Become familiar with the research behind the design of CPM courses.

+ Learn strategies to establish and maintain effective study teams in your classrooms.

+ Collaborate and learn with other teachers.

Opening

Agenda

Focus: Collaborative Learning

- ☐ Icebreaker
- ☐ Core Beliefs
- ☐ Collaborative Learning
- ☐ Team Roles
- ☐ Closure

Opening

Working Agreements

- Be willing to take **risks.**
- Have a **visionary** mindset.
- Stay **engaged.**
- Explore and reflect on our **beliefs.**
- Give **grace** to others and ourselves.

Change takes time, effort, and support!

Click on your name and set your status to thumbs up if you are ready to begin.

Agenda

Session One

Focus: Collaborative Learning

- ☐ Icebreaker
- ☐ Core Beliefs
- ☐ Collaborative Learning
- ☐ Team Roles
- ☐ Closure

Icebreaker

Study Team and Teaching Strategy

Notice and Wonder

- Student receives a topic, picture, piece of work, math problem, sample student or teacher work, reading, etc.
- Complete the prompt: I notice _____.
- Complete the prompt: I wonder _____.

Icebreaker

Notice and Wonder

Teacher

What do you notice? What do you wonder?

Respond in Public Chat

Agenda

Session One

Focus: Collaborative Learning

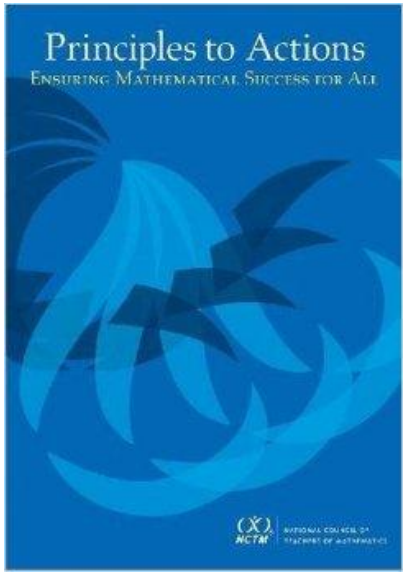
- [x] Icebreaker
- [ ] Core Beliefs
- [ ] Collaborative Learning
- [ ] Team Roles
- [ ] Closure

Core Beliefs

Beliefs About Teaching and Learning Mathematics

Mathematics Teaching Practices
Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.
Implement tasks that promote reasoning and problem solving. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.
Use and connect mathematical representations. Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.
Facilitate meaningful mathematical discourse. Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.
Pose purposeful questions. Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.
Build procedural fluency from conceptual understanding. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.
Support productive struggle in learning mathematics. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.
Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.

Fig. 1. Mathematics Teaching Practices



Core Beliefs

Starting with Core Beliefs

*"Teachers' **beliefs influence the decisions** that they make about the manner in which they teach mathematics… Students' beliefs influence their perception of **what it means to learn mathematics** and their dispositions toward the subject."*

—NCTM's Principles to Actions, 2014

Core Beliefs

Starting with Core Beliefs

Teacher

Beliefs about Teaching and Learning Mathematics

Productive	Unproductive
	

Core Beliefs

Starting with Core Beliefs

Mathematics learning should focus on developing understanding of concepts and procedures through problem solving, reasoning, and discourse.

Productive Belief

Round 1

Productive	Unproductive
	

Core Beliefs

Starting with Core Beliefs

Students can learn to apply mathematics only after they have mastered the basic skills.

Unproductive Belief

Round 2

Productive	Unproductive
	

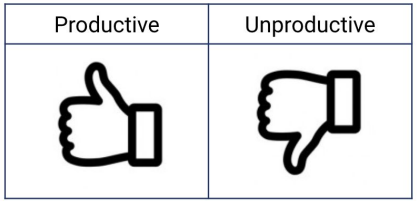
Core Beliefs

Starting with Core Beliefs

An effective teacher provides students with appropriate challenge, encourages perseverance in solving problems, and supports productive struggle in learning mathematics.

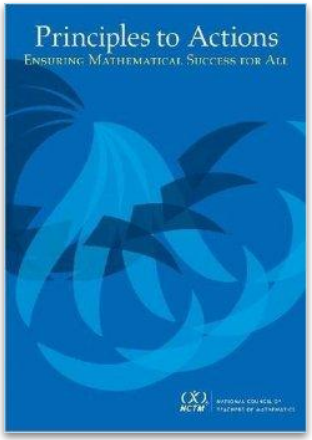
Productive Belief

Round 3

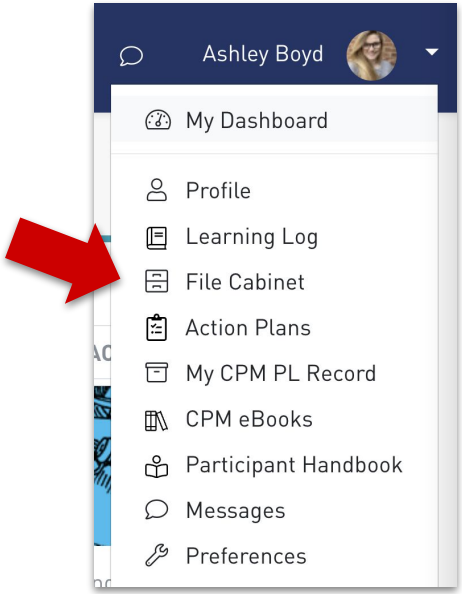


Core Beliefs

Beliefs About Teaching and Learning Mathematics



Beliefs about teaching and learning mathematics	
Unproductive beliefs	**Productive beliefs**
Mathematics learning should focus on practicing procedures and memorizing basic number combinations.	Mathematics learning should focus on developing understanding of concepts and procedures through problem solving, reasoning, and discourse.
Students need only to learn and use the same standard computational algorithms and the same prescribed methods to solve algebraic problems.	All students need to have a range of strategies and approaches from which to choose in solving problems, including, but not limited to, general methods, standard algorithms, and procedures.
Students can learn to apply mathematics only after they have mastered the basic skills.	Students can learn mathematics through exploring and solving contextual and mathematical problems.
The role of the teacher is to tell students exactly what definitions, formulas, and rules they should know and demonstrate how to use this information to solve mathematics problems.	The role of the teacher is to engage students in tasks that promote reasoning and problem solving and facilitate discourse that moves students toward shared understanding of mathematics.
The role of the student is to memorize information that is presented and then use it to solve routine problems on homework, quizzes, and tests.	The role of the student is to be actively involved in making sense of mathematics tasks by using varied strategies and representations, justifying solutions, making connections to prior knowledge or familiar contexts and experiences, and considering the reasoning of others.
An effective teacher makes the mathematics easy for students by guiding them step by step through problem solving to ensure that they are not frustrated or confused.	An effective teacher provides students with appropriate challenge, encourages perseverance in solving problems, and supports productive struggle in learning mathematics.



Core Beliefs

Starting with Core Beliefs

*"It is important to note that **these beliefs should not be viewed as good or bad**. Instead, beliefs should be understood as **unproductive** when they **hinder the implementation** of effective instructional practice or **limit student access** to important mathematics content and practices."*

—NCTM's Principles to Actions, 2014

Agenda

Session One

Focus: Collaborative Learning

- [x] Icebreaker
- [x] Core Beliefs
- [ ] Collaborative Learning
- [ ] Team Roles
- [ ] Closure

Collaborative Learning Research

CPM Three Research Pillars

Attaining Long Term Knowledge

- **C**ollaborative Learning
- **P**roblem-Based Learning
- **M**ixed, Spaced Practice

Synthesis of Research on Cooperative Learning
Collaborative Learning

use the link in the Public Chat

Collaborative Learning Research

Reading Protocol

Golden Line

Read the article, highlight or note parts of the research that:

- raise questions for you
- confirm what you already believe
- cause you to reconsider prior assumptions
- make you say, “Ah Ha”
- conflict with your beliefs

Choose 1-2 “golden lines” to share.

Collaborative Learning

CPM's Guiding Principles

Teacher

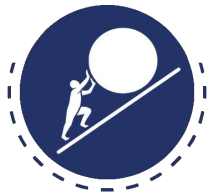
Students deepen their mathematical understanding when they are engaged with concepts over time.

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.

Agenda

Session One

Focus: Collaborative Learning

- [x] Icebreaker
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Team Roles

Using Teams

I have used groups or teams in my classroom.

RAISE HAND

Team Roles

Collaborative Learning

How do we create an environment for effective collaborative learning?

Establish and maintain Team Roles and Team Routines

Intentional use of Study Team & Teaching Strategies (STTS)

Circulation, questioning, & team interactions

Team Roles

Study Team and Teaching Strategy

Pairs Check

- Team Member 1 explains.
- Team Member 2 asks any clarifying questions to Team Member 1.
- Team Member 2 explains.
- Team Member 1 asks any clarifying questions to Team Member 2.

Team Roles

Groups vs Teams

Pairs Check

How would you describe a *group*?

How would you describe a *team*?

How are they similar? How are they different?

Team Roles

Connecting to Team Roles

*"A **team** is an interdependent group of individuals who share responsibility and are focused on a common goal. By working together, they tend to maximize each other's strengths and minimize weaknesses. Unlike a group, where each member is expected to contribute separately, the most important characteristic of a team is synergy: the whole is greater than the sum of its parts."*

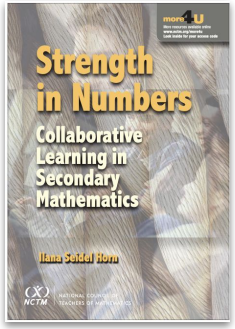
—Branislav Moga, ActiveCollab, 2017

Team Roles

Positive Interdependence

*"**Positive Interdependence** arises when students feel mutual accountability for their learning and believe that their own learning will benefit through their interactions with each other."*

—Strength in Numbers, 2012



Team Roles

Team Roles Jigsaw

Teacher

Facilitator

Resource Manager

Task Manager

Recorder/Reporter

Team Roles

Study Team and Teaching Strategies

Jigsaw

- Each team member takes responsibility for a different part.
- Learn about your assigned part and prepare to share what you learn with your teammates.
- Take turns sharing what you learned with your team.
- Organize what your team learned altogether. Record your key takeaways and connections in your Shared Notes.

Team Roles

Whiparound

Facilitator

Main Role: Coordinates team members on problems.

Key Question: Who?

- *"Who wants to read?"*
- *"Who can get us started?"*
- *"Who can explain?"*
- *"Who understands? Who does not?*

Resource Manager

Main Role: Manages resources, including supplies and access to the teacher.

Key Question: What?

- *"What do we need to solve the problem?*
- *"What's the questions?"*
- *"What does it mean?"*
- *"What else can we try?"*

Task Manager

Main Role: Manages tasks and time to ensure completion.

Key Question: Why?

- *"Why does that work?"*
- *"Why are we off task?"*
- *"Why does this make sense?*
- *"Why do you think that works?"*

Recorder/Reporter

Main Role: Teams spokesperson. Supports team members showing and explaining their work.

Key Question: How?

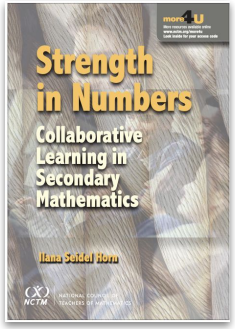
- *"How can we be sure we are right?"*
- *"How should we display our answers?"*
- *"How can we show our reasoning?"*
- *"How can we organize our work?"*

Team Roles

Positive Interdependence

*"**Positive Interdependence** arises when students feel mutual accountability for their learning and believe that their own learning will benefit through their interactions with each other."*

—Strength in Numbers, 2012



Brain Break

Waving Hands

How to participate?

Stand up and follow along with the Facilitators.

Team Roles

Classroom Connection

What do you notice? What do you wonder?

Teacher

Respond in Public Chat

Team Roles

Team Roles Placemat

Facilitator

Main Role: Coordinates team members in working on problems.

Key question: Who?

- Who wants to read?
- Who has an idea?
- Who can get us started?
- Who can explain?
- Who understands? Who does not?

Recorder/Reporter

Main Role: Acts as team spokesperson; is responsible for written and oral responses for the team.

Key question: How?

- How can we be sure we're right?
- How should we show our answers?
- How can we organize our work?
- How can we show our reasoning?
- How can we think about it another way?

Task Manager

Main Role: Manages task, making sure that all parts of the task are completed and that everyone is involved.

Key question: Why?

- Why does that work?
- Why do you think that is correct?
- Why would that make sense?
- Why aren't you working with us?

(Keep all team members on task.)

Resource Manager

Main Role: Manages resources including resource pages, calculators, books, notes, ideas, and access to the teacher.

Key question: What?

- What do we need to solve this problem?
- What's the question?
- What does it mean?
- What did we learn that would help us?
- What else can we try?

Team Roles

Teacher Tip - Assigning & Displaying Roles

Team Roles

Creating Effective Study Teams

Team Roles are supported in all CPM courses.

+ Lesson Specific Resource Pages provided in Chapter 1 in each course.
+ General Team Roles are also provided in the teacher notes.

Assigning and Displaying Roles

+ Placemats, Table Tents, Name Cards, Lanyards and more can be found in the CPM eBooks.

Teacher Tab ▷ Team Support ▷ Team Resources

Team Roles

CPM Guiding Principles

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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.

Team Roles

Learning Log

Title: Study Teams

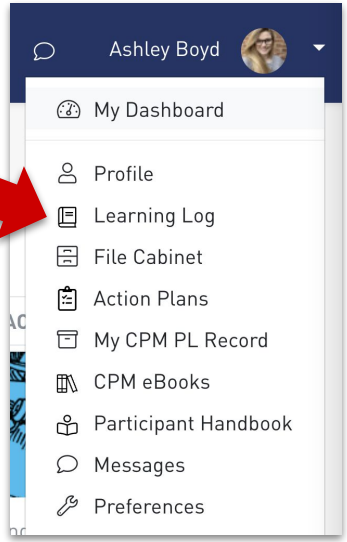
- *Using study teams and team roles is important in collaborative classrooms because _____.*
- *I want to remember ____ about study teams and team roles.*

Learning Log

Steps to access

Teacher

1.



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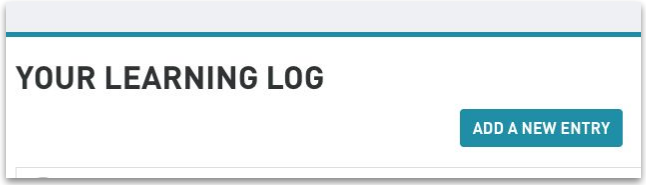

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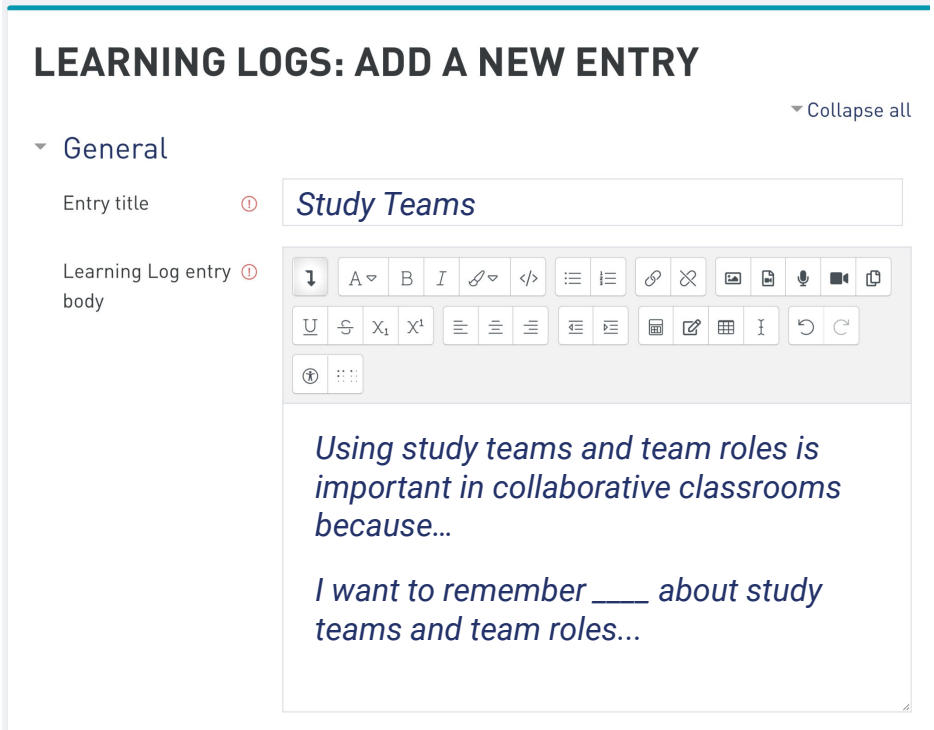


Agenda

Session One

Focus: Collaborative Learning

- [x] Icebreaker
- [x] Core Beliefs
- [x] Collaborative Learning
- [x] Team Roles
- [ ] Closure

Closure

Session One Outcomes

Participants will:

+ Become familiar with the research behind the design of CPM courses.

+ Learn strategies to establish and maintain effective study teams in your classrooms.

+ Collaborate and learn with other teachers.

Closure

Study Team and Teaching Strategies

Ambassador	Fishbowl	Huddle	**Notice & Wonder**	Reciprocal Teach	Think-Ink-Pair-Share (T.I.P.S)
Carousel: Around the world	Fortune Cookie	I Spy	**Pairs Chat**	Red Light, Green Light	Think- Pair- Share
Carousel: Index Card	Gallery Walk	**Jigsaw**	Participation Quiz	Silent Appointment	Traveling Salesman
Carousel: Station Rotation	Give One, Get One	Listening Post	Peer Edit	Silent Debate	Tuning Protocol
Dyad	Hot Potato	Numbered Heads	Pick Three	Swapmeet	Walk and Talk
Elevator Talk	Hot Seat	Math Chat	Proximity Partner	Teammates Consult	**Whiparound**

Closure

Teacher Tips

Teacher Actions That Support Implementation

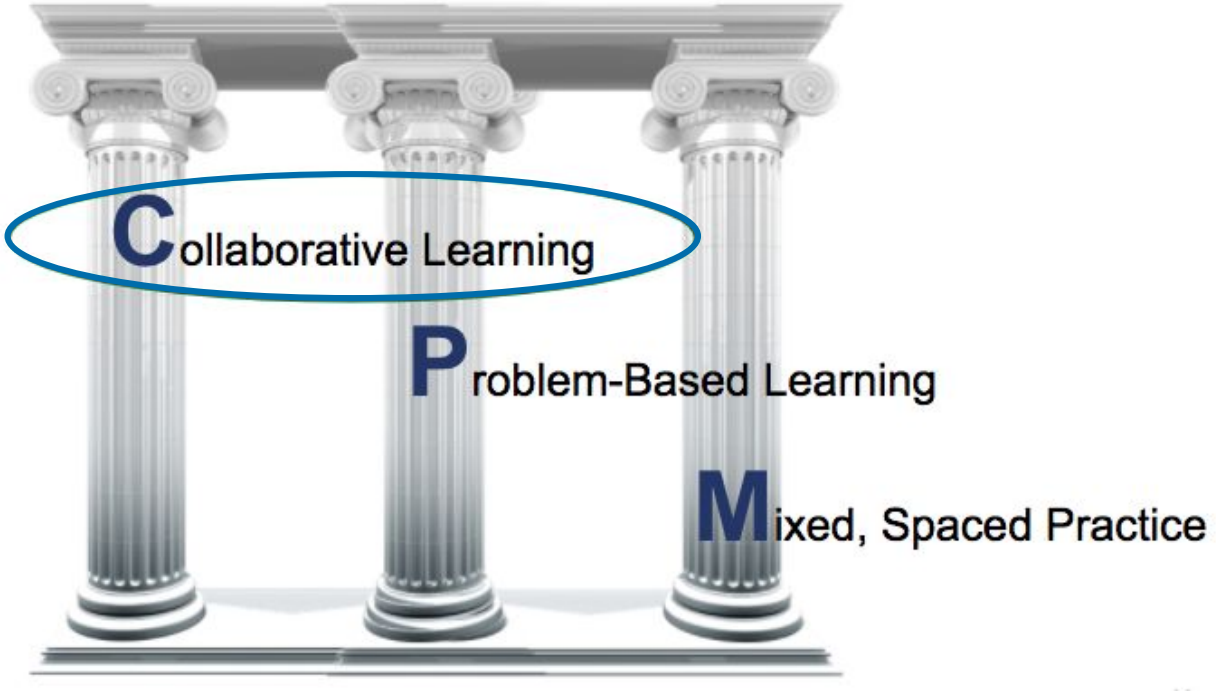
Use the Teacher Notes as intended.

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

Create purposeful lesson plans.

Closure

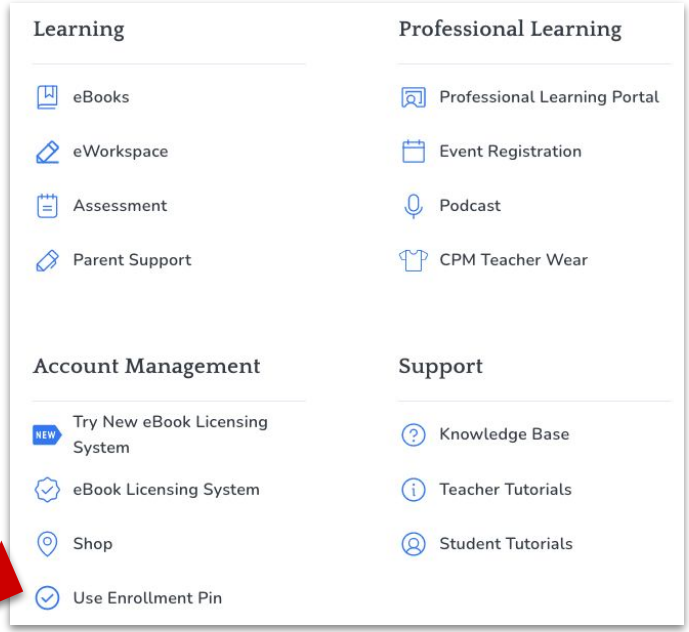
Three Pillars of CPM



Closure

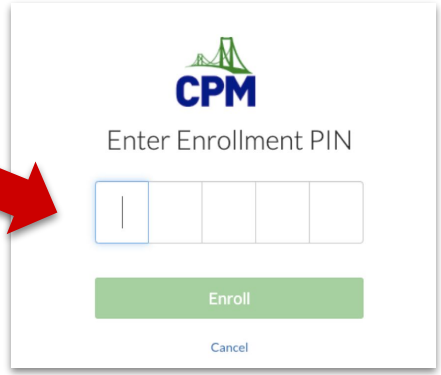
eBook Enrollment

1st **my.cpm.org**



2nd

3rd



Steps to enroll in eBook:

1. Go to [my.cpm.org](my.cpm.org)
2. Click “Use Enrollment Pin” under Account Management
3. Enter the enrollment pin **(In public chat)**

Closure

- **Parking Lot**
- **Attendance & Feedback**

  Either scan the QR code

  OR

  Enter passcode in the portal

  XXXXXX

- **Next Steps:**
  - Finish Introductions to Foundations Module.
  - Use the PIN to enroll and access all eBooks.
  - Explore Team Resources in the eBook.
    - Teacher Tab ▷ Team Support ▷ Team Resources

PUT QR Code HERE

@CPMeducationalprogram @CPMmath

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Title Font Size: 24

Subtitle Font Size: 18

Color coding:

- **Teacher Lens**: 006DAB
- **Learning Log**: 006DAB
- **Student Lens**: 41AD49
- **Housekeeping**: 233368
- **Content Module**: 006D41
- **Thread**: 006D41

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Note: Drop zones of icons on layouts are not moveable.

HOUSEKEEPING

ANCHOR PAGE

WELCOME

PUZZLE

TEAM GOAL

TEACHER LENS

LEARNING LOG

THREAD

CONTENT MODULE

MATH GOAL

STUDENT LENS

EQUITY LENS

ASSESSMENT

PRODUCTIVE STRUGGLE

RESEARCH PILLARS

MSP

COLLABORATIVE LEARNING

PBL

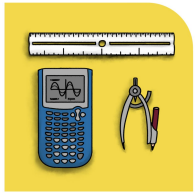
STUDY TEAMS

LEARNING TARGET

TASK CARD

TEAM ROLES ALL

RESOURCE MANAGER



TASK MANAGER

REPORTER RECORDER

FACILITATOR

IMPLEMENTATION ACTION PLAN

TEAM ROOMS

IMPLEMENTATION PROGRESS TOOL

STTS