Foundations for *Inspiring Connections* Session 6

Welcome!

Foundations for Inspiring Connections - Session 6
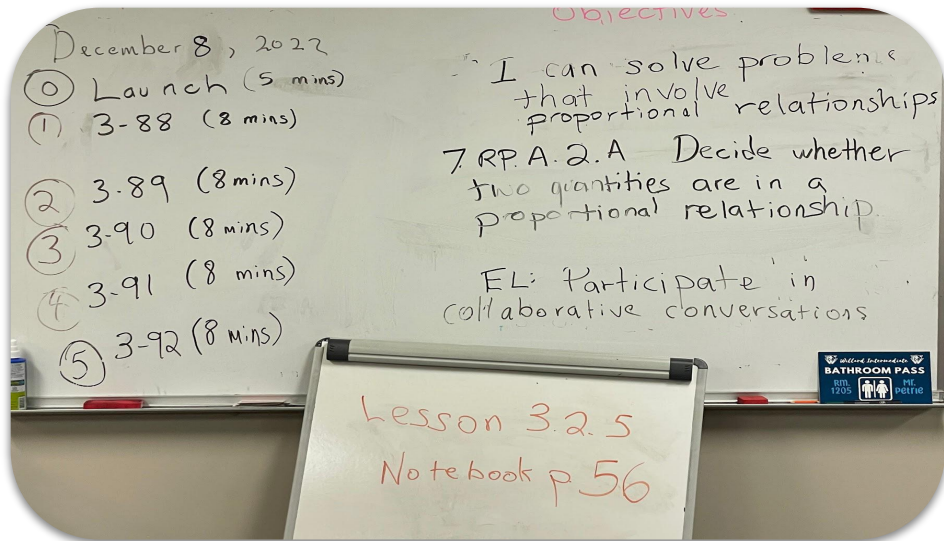
What should I do before we get started?

+ Please respond to the door question - What was the make, model, and color of your first car?

+ Review the Virtual Routines.

Virtual Routines

- Join with microphone.
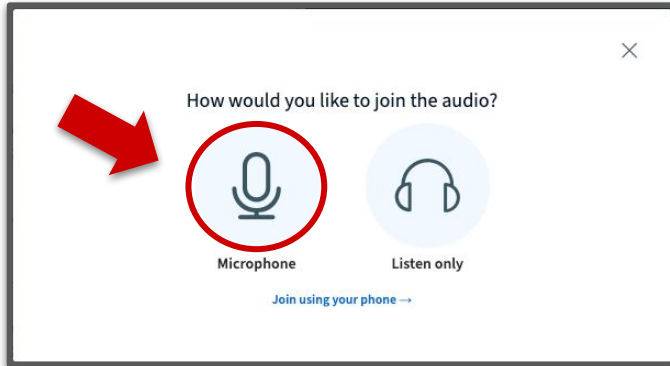- Private chat facilitator for individual support.
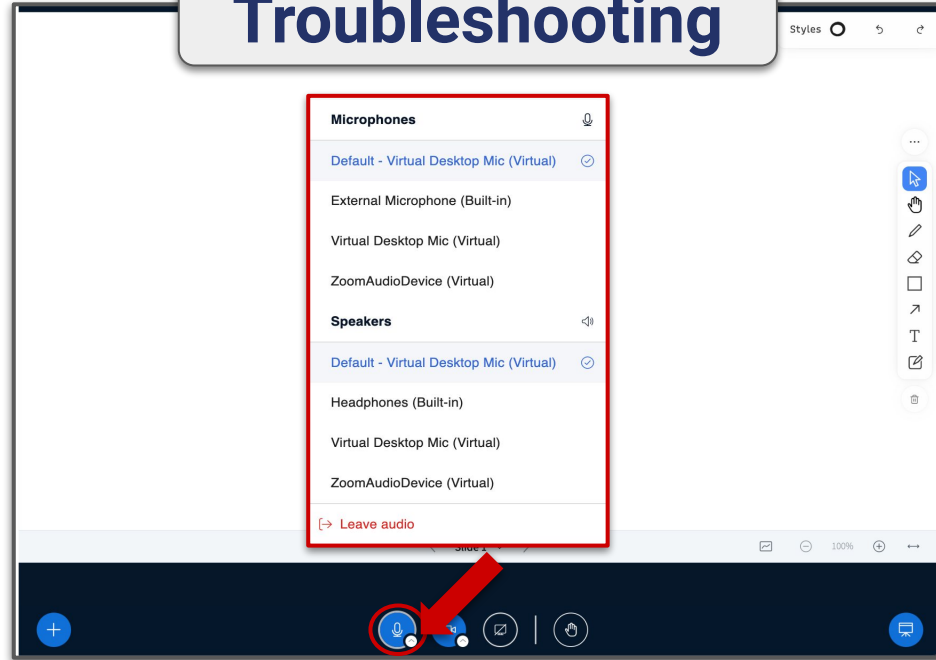- Share your ideas.

Welcome!
CPM Virtual Learning Series

Tech Tip

Troubleshooting

Audio

Opening
Foundations for Inspiring Connections Virtual Series

+ Sessions 1 & 2: Positive Classroom Culture
+ Sessions 3 & 4: Collaborative Learning
+ **Sessions 5 & 6: Problem-Based Learning**
+ Sessions 7 & 8: Mixed, Spaced Practice

+ Follow-Up Sessions 1 & 2: Supporting Productive Struggle
+ Follow-Up Sessions 3 & 4: Formative Assessment

5

Opening
Outcomes

Together we will:

learn how the design of *Inspiring Connections* supports and develops problem-based learning.

reflect on current practices and beliefs to develop a plan for the implementation of *Inspiring Connections*.

explore and experience *Inspiring Connections*.

collaborate and learn with other teachers.
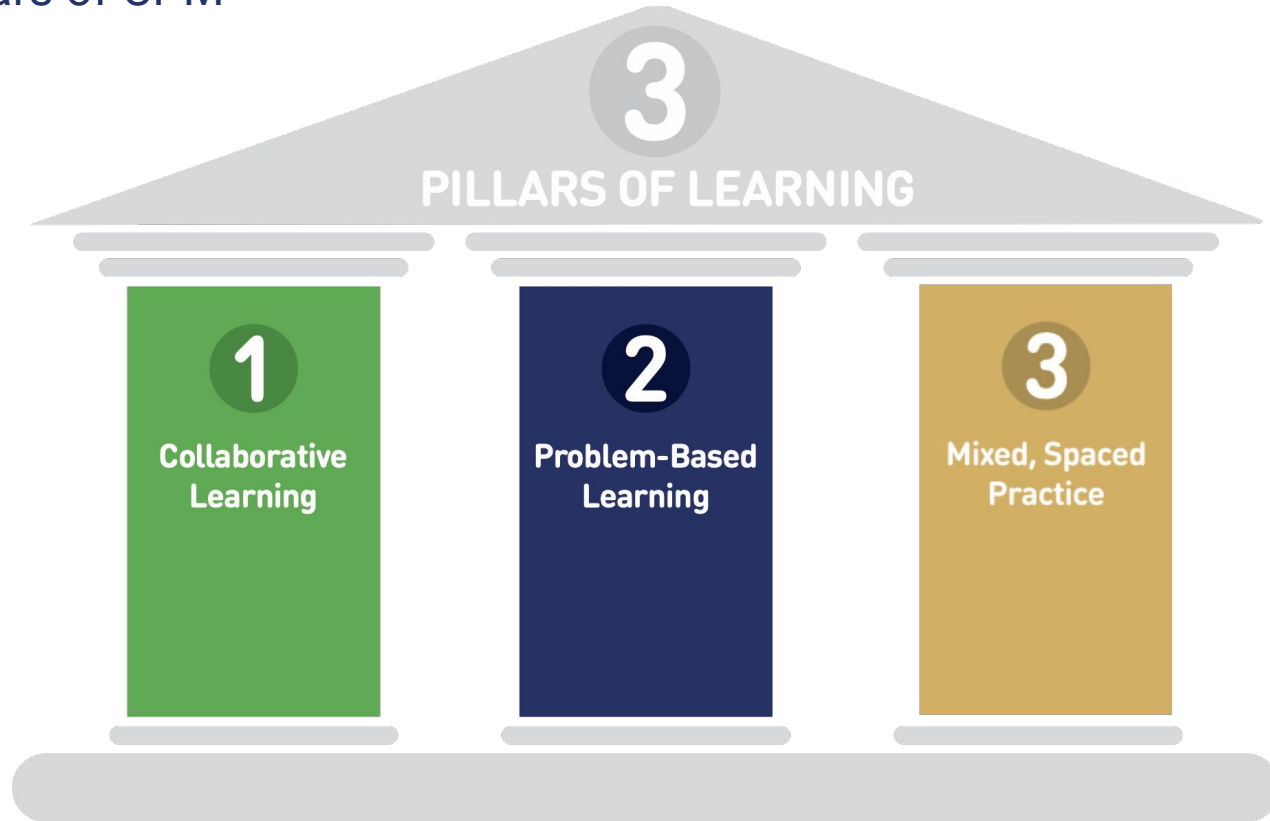
Agenda
Session 6

Focus: Problem-Based Learning

+ **Opening**
+ Lesson
+ Embedded Supports
+ Preparing to Teach
+ Closure

Learning Target: I can get ready to learn.

Three Pillars of CPM

Guiding Principles

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.

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!

Set your status to thumbs up if you are ready to begin.

Opening
Icebreaker

Team Task:

+ Introduce yourself.

+ Assign team roles.

+ Share answers to the door question.

    + *What was your first car?*

Door Question: What was your first car?

Representative

Investigator

Coordinator

Organizer

Agenda
Learning Target

Focus: Problem-Based Learning

+ Opening

+ **Lesson**

+ Embedded Supports

+ Preparing to Teach

+ Closure

Learning Target: I can identify how routines and structures support learning.

Opening

IC3 1.1.4 Is there a relationship?
Mathematicians Notebook (MNB)

Math Learning Target:
+   I can draw a trend line on a scatter plot.

Team Learning Target:
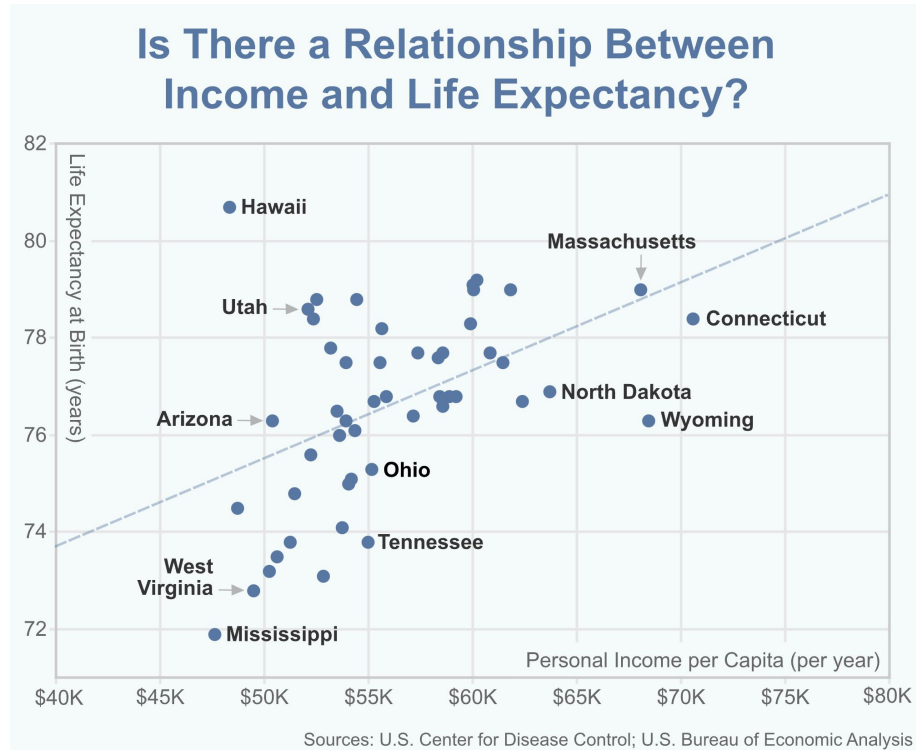+   I can demonstrate respect for ideas, people, and the tasks.

Mathematical Practices Target:
+   I can construct a viable argument.
+   I can critique the reasoning of others.

p.30 & 31

Launch: Talk-Write-Discuss

Is There a Relationship Between Income and Life Expectancy?

Sources: U.S. Center for Disease Control; U.S. Bureau of Economic Analysis

p.26

<u>Make a prediction and respond to the poll:</u>

Is $25,000 a reasonable price for a car with 81,000 miles?

A. Yes

B. No

C. Maybe

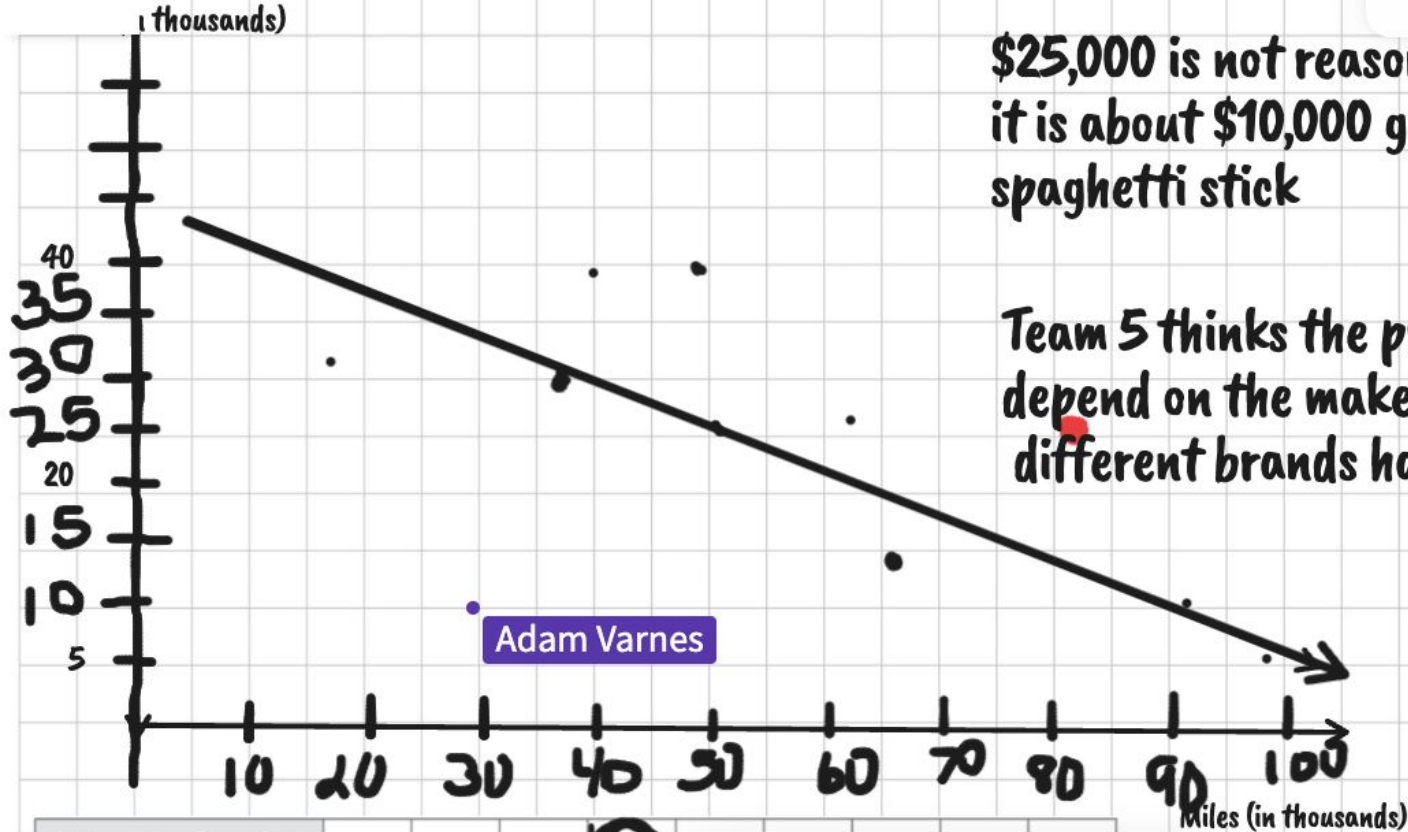**p.30 & 31**

Is $25,000 a reasonable price for a car with 81,000 miles?

Odometer Reading (thousands of miles)	49	66	37	92	48	40	63	17	98
Price (thousands of $)	27	14	30	10	40	39	26	31	5

Styles

(in thousands)

$25,000 is not reasonable because it is about $10,000 greater than our spaghetti stick

Team 5 thinks the price of the car might depend on the make of the car because different brands have different values.
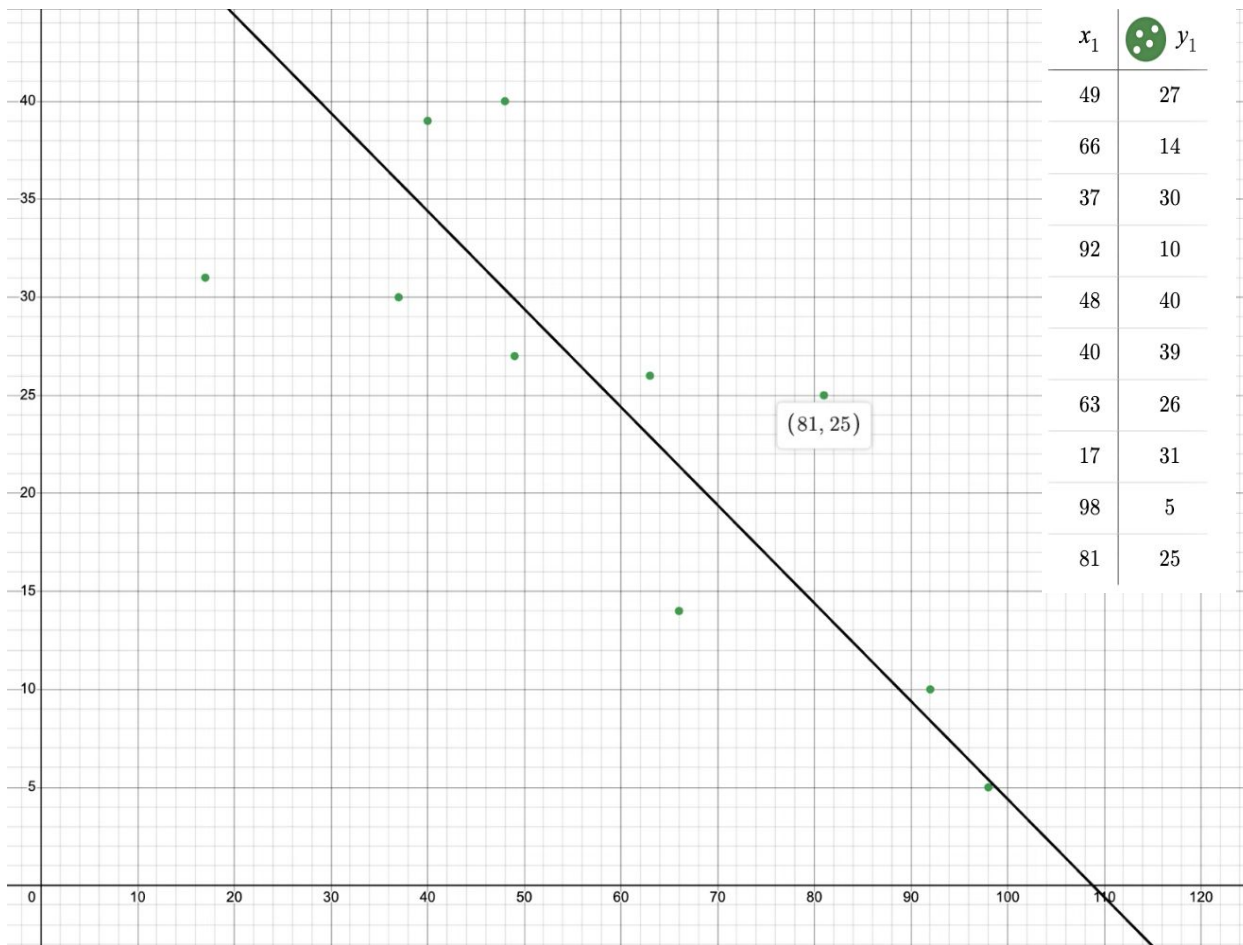
40
35
30
25
20
15
10
5

Adam Varnes

Pam Chavez

10   20   30   40   50   60   70   80   90   100

Miles (in thousands)

Odometer Reading (thousands of miles)	49	66	37						
Price (thousands of $)	27	14	30	10	40	39	26	31	5

16

x_1	y_1
49	27
66	14
37	30
92	10
48	40
40	39
63	26
17	31
98	5
81	25

Mileage (in thousands)

Cost (in thousands)

(81, 25)

$25,000 **is not** reasonable because it's way above the trend line. $81,000 car should be about :14,000.

Our trend line represents the average cost for a vehicle's mileage and cost.

As the mileage goes up, the cost goes down, resulting in a negative trend line.

Yes, there are exceptions to the trend we have some outliers in this graph.

Different types of cars have different values.

Opening

IC3 1.1.4 Is there a relationship?
Mathematicians Notebook (MNB)

Math Learning Target:
+   I can draw a trend line on a scatter plot.

Team Learning Target:
+   I can demonstrate respect for ideas, people, and the tasks.

Mathematical Practices Target:
+   I can construct a viable argument.
+   I can critique the reasoning of others.

p.32

IC3 1.1.3 Reflection & Practice:

1-23   **1-25**

p.24 & 25

Opening

IC3 1.1.4 Is there a relationship?

How did the structures and routines of this lesson support learning?

Student What were you doing as a student?

Teacher What was I doing as a teacher?

Teacher

Teacher Tips – Lesson at a Glance

Mathematical Language Routines	Study Team & Teaching Strategies	Discussion Supports	Want to Learn More?
(Co-Crafted Questions)	*(Talk-Write-Discuss, Dyad)*	*(Talk Moves)*	

8 Competencies for Culturally Responsive Teaching

Teacher

Competency 4: Bring real-world issues into the classroom
Culturally responsive teachers address the "so what?" factor of instruction by helping students see how the knowledge and skills they learn in school are valuable for their lives, families, and communities…Culturally responsive educators employ lessons and regularly assign projects that require learners to identify complex, real-world issues they encounter in their daily lives and propose solutions for these problems.

(*Inspiring Connections*, Teacher Materials, 2024)

Want to know more? See "8 Competencies for Culturally Responsive Teaching" in Teacher Materials
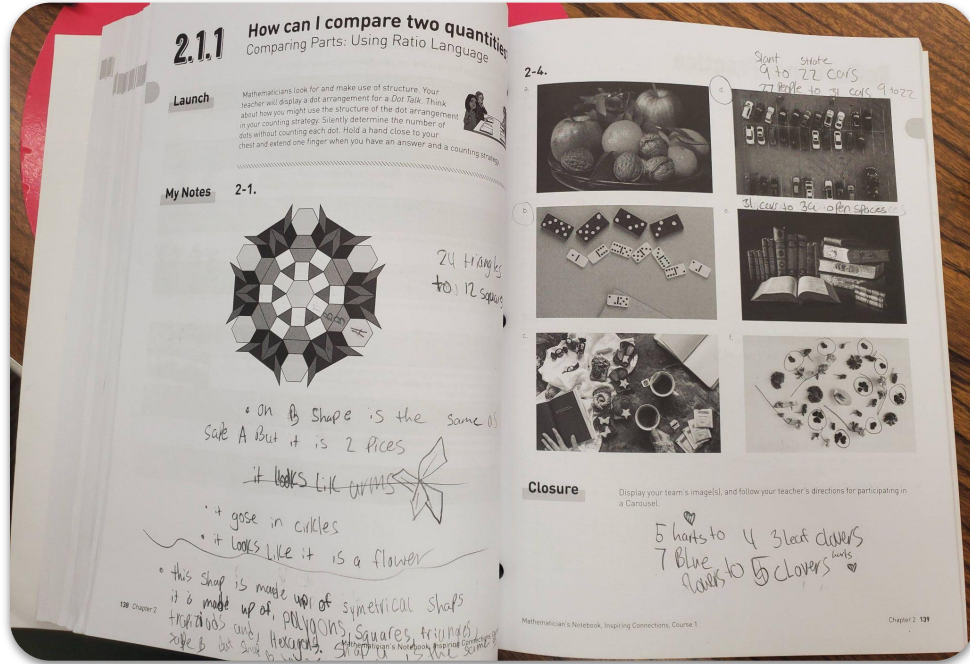
Preparing To Teach
Lesson Pacing

Before You Start Inspiring Connections
Foundations for Implementation Series

INSPIRING CONNECTIONS
Digital Platform

CPM

Screen Break

Take a break and walk away from the computer.

Agenda
Session 6

Focus: Problem-Based Learning

- + Opening
- + Lesson
- + **Embedded Supports**
- + Preparing to Teach
- + Closure

Learning Target: I can identify how routines and structures support learning.

Embedded Supports

Math Language Routines & Strategies

Jigsaw

Authors' Vision

Equity

Talk-Write-Discuss

Three Reads

Discussion Supports

Investigate Follow-Up Questions

p.33

Embedded Supports

Math Language Routines & Strategies

Jigsaw

Talk-Write-Discuss

Three Reads

Discussion Supports

Investigate Follow-Up Questions

Your Task:

+ Read your assigned section.

+ Create a written summary of notices and wonders.

p.33

Embedded Supports

Math Language Routines & Strategies

Team Task:

+ Share your written summary.

+ As a team, share your answers to the focus questions (at right), and create a team summary.

Talk-Write-Discuss

Three Reads

Discussion Supports

Investigate Follow-Up Questions

Stronger and Clearer

How do they support problem-based learning?

Embedded Supports
Reflection

Participant's Notebook: Reflection Journal

+ *What do you want to remember about Mathematical Language Routines & Strategies?*

+ *How do Mathematical Language Routines & Strategies connect to problem-based learning?*

p.34   *Add questions, comments, good ideas to share, and burning issues to the Parking Lot!*

Brain Break
Alphabetical Animals
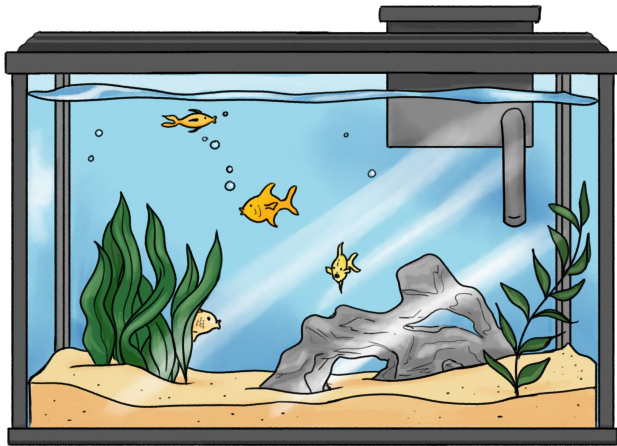
Class Task:

+ Create an alphabetical list of animals in the Public Chat.

+ Once someone has added an animal for that letter, move to the next letter.

Agenda
Session 6

Focus: Problem-Based Learning

+ Opening
+ Lesson
+ Embedded Supports
+ **Preparing to Teach**
+ Closure

Learning Target: I can provide opportunities for students to become independent in pursuing problems.

Preparing To Teach

From Dependent Learners to Independent Learners

The Dependent Learner	The Independent Learner
+ Is dependent on the teacher to carry most of the cognitive load of a task always + Is unsure of how to tackle a new task + Cannot complete a task without scaffolds. + Doesn't retain information well or "doesn't get it".	+ Relies on the teacher to carry some of the cognitive load temporarily + Utilizes strategies and processes for tackling a new task + Regularly attempts new tasks without scaffolds + Has cognitive strategies for getting unstuck + Has learned how to retrieve information from long-term memory

(Culturally Responsive Teaching & the Brain, Hammond, 2015)

Preparing To Teach

Teacher Tips

+ Use the student edition (Complete the math as student. Take teacher notes in a different color or on a sticky note.)

+ Lesson at a Glance offers timing suggestions. Break it down by problem.

+ Use the RICO acronym for roles. Rotate which role you give tasks to.

+ **Bold** words in the digital platform are strategies and routines.

+ *Italics* are questions for you to ask OR sentence frames for students.

+ Take note of lesson pacing.

+ Use "My Notes" and "Export Notes"

Preparing To Teach
Summarize & Reflect

Focus questions:

+ *What do you want to remember about the Authors' Vision when preparing to teach?*

+ *What teacher moves do you want to focus on when preparing to teach?*

+ *How will I ensure that students experience the three lesson components (Launch-Explore-Closure)?*

Share Around: Post one component of lesson preparation that you will implement this school year.

p.35

Add questions, comments, good ideas to share, and burning issues to the Parking Lot!

Agenda
Session 6

Focus: Problem-Based Learning

+ Opening
+ Lesson
+ Embedded Supports
+ Preparing to Teach
+ **Closure**

Learning Target: I can reflect on the impact of problem-based learning.

Closure
Inspiring Connections Action Plan

Closure
Inspiring Connections Action Plan
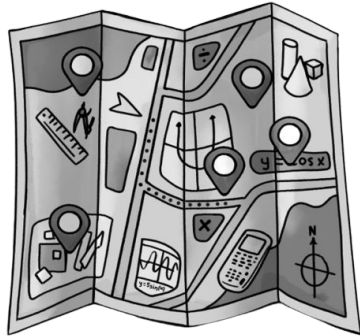
DAY THREE

PROBLEM-BASED LEARNING

How will you use the resources in *Inspiring Connections* to support problem-based learning?

Consider:

- Beliefs
- Research
- Big ideas
- Vocabulary
- Tools and resources to support you

To support problem-based learning, I will _____.

No response yet

Closure
Outcomes

Together we have had the opportunity to…

learn how the design of *Inspiring Connections* supports and develops problem-based learning.

reflect on current practices and beliefs to develop a plan for the implementation of *Inspiring Connections*.

explore and experience *Inspiring Connections*.

collaborate and learn with other teachers.

p.3&4

Closure

**As you fill out your feedback, keep these questions in mind:**

+ Which activities from today were most beneficial for you? Why?

+ Were there any activities from today that lost your engagement or needed more clarification?

+ Do you have any suggestions for improvement?

Closure
Attaining Long-Term Knowledge

3 PILLARS OF LEARNING

1 Collaborative Learning

2 Problem-Based Learning

3 Mixed, Spaced Practice
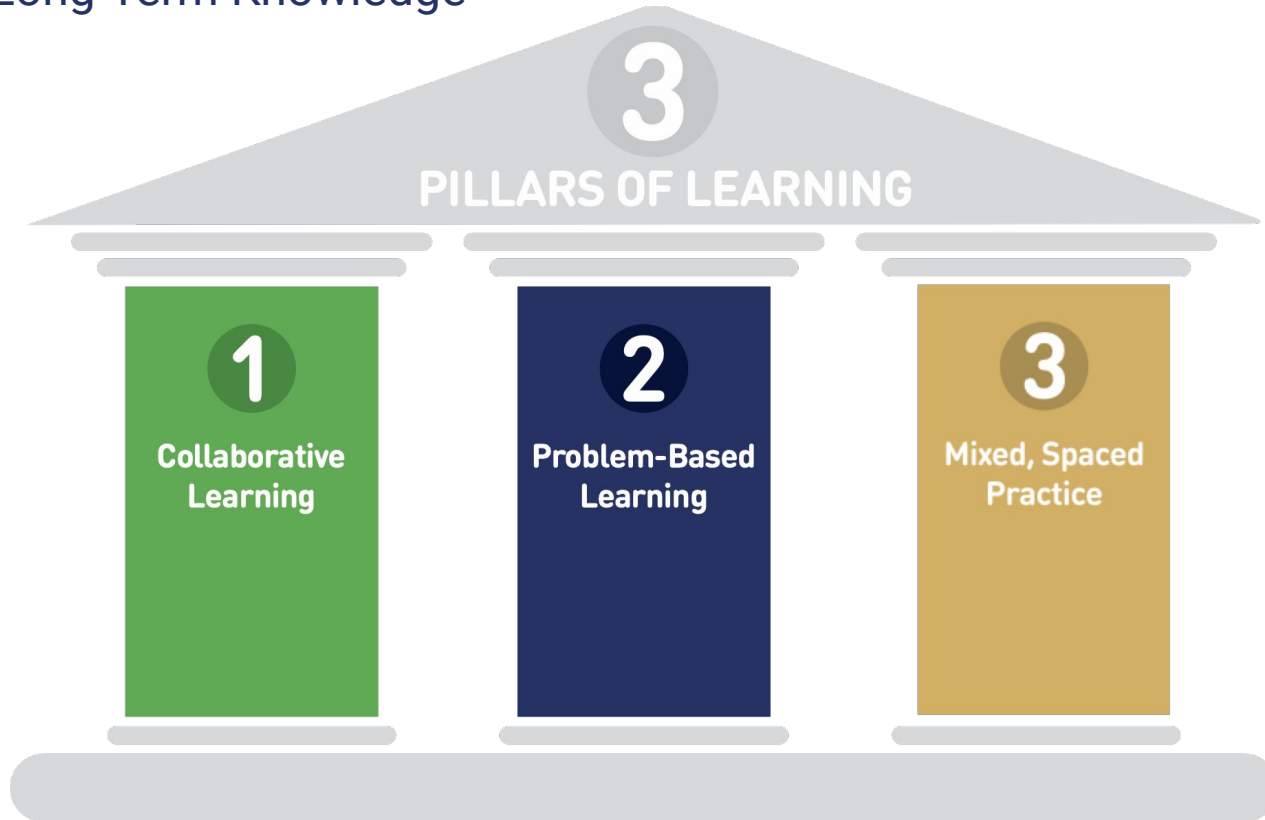
Closure
CPM Guiding Principles

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.

Student's 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.

Closure

CPM's Equity Principles

Relationships are of vital importance.

The goal of teaching is to help all students transition from dependent to independent learners.

Students' uniqueness is an asset, not a deficit.

Reflection is a crucial part of growth.

Closure

+ **Parking Lot**

+ **Attendance**
  ○ Enter passcode in the PL Portal: ######

+ **Next Steps:**
  ○ Try pacing in the Digital Platform → See the Shared Notes for mock login information.

  ○ Use the "Course Content in Inspiring Connections" module to work through the Prelude and Chapter 1 as a student.

@CPMeducationalprogram   @CPMmath   @CPMmath