Building on Assessment – Day 3

Rev 5/5/23 (ce)

Opening

Building on Assessment – Day 3

It became a great day when you joined us!

Presenter Name, Presenter@cpm.org

Sign in and make a name tag.

Take a puzzle piece and find your seat.
Introduce yourself to your team.

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Opening

Outcomes

Participants will:

+ Gain knowledge of questioning research and apply it to formative assessment.
+ Utilize given tools to gradually transfer the questioning process to students.
+ Gain knowledge of formative assessment research and strategies.
+ Plan formative assessments that support summative assessments.
+ Develop assessment success criteria.
+ Utilize the chapter progression to support student learning over time.

Opening

Agenda

Formative Assessments & Implementation Planning

+ Opening
+ Definition of Assessment
+ Formative Assessment
+ Questioning and Talk Moves
+ Implementation Planning
+ Closure

Opening

Effective Math Teaching Practices

Establish goals to focus learning.

Implement tasks that promote reasoning and problem solving.

Facilitate meaningful mathematical discourse.

Pose purposeful questions.

Elicit and use evidence of student thinking.

Opening

Be willing to take **risks**.

Have a **visionary** mindset.

Stay **engaged**.

Explore and reflect on your **beliefs**.

Give **grace** to others and yourself.

Change takes time, effort, and support!

Opening

Beliefs about Mathematics Assessment

		PRODUCTIVE BELIEF
NCTM	1	The primary purpose of assessment is to inform and improve the teaching and learning of mathematics.
	2	Assessment is an ongoing process that is embedded in instruction to support student learning and make adjustments to instruction.
	3	Mathematical understanding and processes can be measured through the use of a variety of assessment strategies and tasks.
	4	Multiple data sources are needed to provide an accurate picture of teacher and student performance.
	5	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.
	6	Ongoing review and distributed practice within effective instruction are productive test preparation strategies.

CPM	7	Authentic assessment means assessing in a manner that mirrors the way the students have learned, and focusing on what the students know, rather than what the students do not know.
	8	Assessment, as with the learning, should focus on the big ideas and the connections to assess for understanding, and not on the fine grain-sized skills.
	9	Assessment and teaching should be seamlessly interwoven, and time should be spent on both. Because of the lack of time most teachers have, it is important to assess wisely, and use the supports that are in place.
	10	Assessment is the process of understanding student learning, and grading is evaluating that understanding. The bulk of the teacher's time should be spent on assessing rather than grading.

Icebreaker

Think about a test you took that left an impression.
(emotional, successful or not successful, funny, etc.)

Be prepared to share why you recalled this memory.
(the anticipation of taking the test, what occurred during the test, or the aftermath of the test)

Opening

An Invitation to be Visionary

Engage as fully as you can.

Take risks and be vulnerable as a learner.

Set your intention for the day!

Definition of Assessment

"The Latin root of 'assessment' is 'assidere,' meaning 'to sit beside.' With this definition, we can consider assessment a coaching tool, a way to nurture learning."

Fair isn't Always Equal, pg. 35
Rick Wormeli, 2018

Think-Ink-Pair-Share

How is this definition the same or different from how assessment is viewed at your school?

Definition of Assessment

Principles to Actions

An excellent mathematics program ensures that assessment:

+ is an integral part of instruction;
+ provides evidence of proficiency with important mathematics content and practice;
+ includes a variety of strategies and data sources; and
+ informs feedback to students, instructional decisions, and program improvement.

Definition of Assessment

Learning Target

Participants will gain knowledge of formative assessment research and strategies.

Success Criteria (Know, Understand, Do)

- Participants know formative assessment strategies.
- Teams understand why formative assessment is important.
- Participants will connect CPM's Principles of Assessment and NCTMs 5 Key Formative Assessment Strategies with Productive and Unproductive Beliefs.

Definition of Assessment

Proximity Partner & Dyad

Teacher

How is the chosen principle evident in your classroom?

In what ways can the Proximity Partner and Dyad STTS support effective formative assessment?

CPM Principles 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.

4. Formative assessment is a learning experience for both the student and the teacher.

Formative Assessment

Five Key Strategies

Teacher

Presentations

Team Task:

- **Read** the introduction, conclusion, and your team's section. *(7 min)*
- **Create** a short presentation that:
  - **Summarizes** the important ideas.
  - Makes **connections** to:
    - CPM Principles of Assessment
    - The Productive Assessment Beliefs

Formative Assessment

Five Key Strategies

1. Clarifying, sharing, and understanding goals for learning and criteria for success with learners.
2. Engineering effective classroom discussions, questions, activities, and tasks that elicit evidence of students' learning.
3. Providing feedback that moves learning forward.
4. Activating students as owners of their own learning.
5. Activating students as learning resources for one another.

So… How do we make all of this happen?

Formative Assessment

Learning Log

Title: Strategies for Effective Formative Assessment

_____ is a strength, because…

_____ is an area for growth, because…

Consider:

+ How is the strategy an equitable assessment practice?
+ What effect will this strategy have on your assessment culture?
+ How will this strategy develop assessment capable learners?

Take a Break

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Formative Assessment

Proximity Partner/Elevator Talk

In what ways does formative assessment happen in your classroom?

(student-directed or teacher-directed)

+ Prepare a response to the prompt.
+ Share your response during the Elevator Talk.

In what ways can the Elevator Talk STTS support effective formative assessment?

Formative Assessment

The Formative Five

- Observations
- Interviews
- Show Me
- Hinge Questions
- Exit Tasks

Formative Assessment

Numbered Heads

How might _____ appear in a CPM classroom?

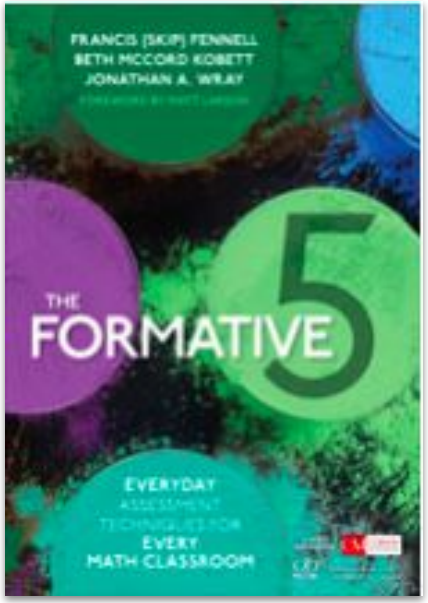
1. Observations
2. Interviews
3. Show Me
4. Exit Tasks

Formative Assessment

Hinge Point Questions

Teacher

How do CPM resources support Hinge Questions?



The Formative Five:
Everyday Assessment Techniques
for Every Math Classroom

(Fennell, McCord Kobett, and Wray)

Formative Assessment

Hinge Questions

Formative Assessment

Identifying Hinge Questions

1. Lesson Questions
from the student book

4-31. UNDERSTANDING $y = mx + b$

Rules for linear patterns can all be written in the form $y = mx + b$

In $y = mx + b$, x and y represent variables, while m and b represent are numbers that stay the same in the equation after they are chosen. with your team:

2. Discussion Questions
from the student book

How can you see growth in the rule?

How do you know your rule is correct?

What does the representation tell you?

What are the connections between the representations?

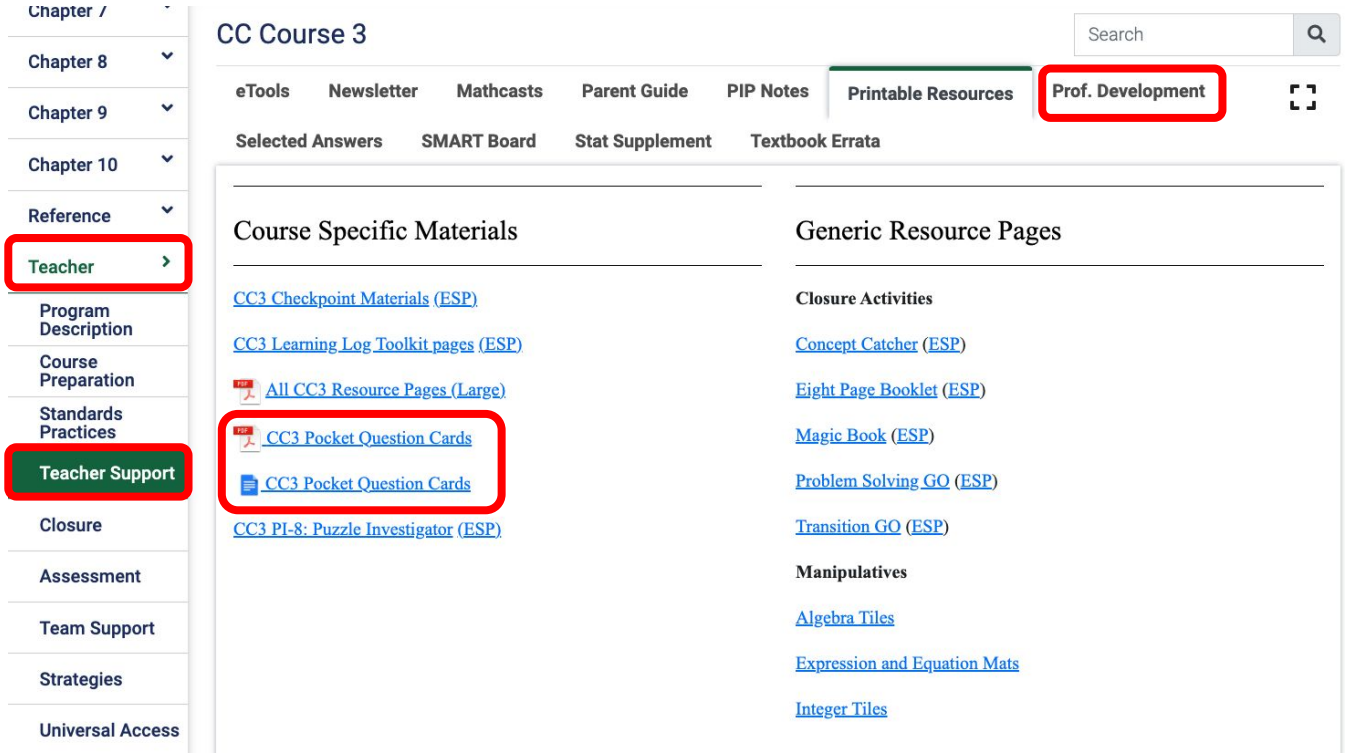
3. Pocket Questions
from the teacher notes

Lesson 4.1.6

- How can you use growth?
- How can we use our knowledge of $y = mx + b$ to make graphs quickly?
- What connections do we still need?

Formative Assessment

CPM Pocket Questions



Teacher

Identifying Hinge Questions

The lessons identified on the next slide have potential Hinge Questions embedded in them.

Team Task

Determine which question(s) can be used as a Hinge Question.

Formative Assessment

Identifying Hinge Questions

Decide whether one (or more) of the embedded questions can be used as a Hinge Question.

If so, which question and where is the Hinge Point?

If not, edit an existing question to make it a Hinge Question.

CC1: 2.2.1

CC2: 3.2.4

CC3: 2.1.2

CCA 4.2.4

CCG: 5.1.2

Formative Assessment

Walk & Talk/Break

Be back at...

In what ways can the Walk & Talk STTS support effective formative assessment?

Proximity Partner

+ Find someone “new.”

Walk & Talk

+ How can using Hinge Questions impact learning?
+ How will I make this a part of my teaching?

Formative Assessment

Identifying a Hinge Question

Planning: Hinge Question Considerations Tool

Date:	Core Connections Course 2, Lesson 4.2.3

Hinge Question:

Hinge Point: After teams finish 4-47.

In what ways is the unit rate helpful when writing an equation of the given situation?

Planning: Hinge Question Considerations Tool

Date:	Core Connections Geometry, Lesson 4.1.4

Hinge Question:

Hinge Point: After teams finish 4-35b and c.

4-35b) Mae Lin says, "I see it differently. I can tell $\Delta y = 4$ without turning the triangle." How can she tell? Explain one way she could know.

4-35c) Eddie replies, "What if we use 72° as our slope angle? Then $\Delta x = 4$." What is he talking about? Discuss with your team and explain using pictures and words.

Formative Assessment

Identifying a Hinge Question

Work with your partner to identify the Hinge Point and create a Hinge Question.

Select a lesson.

Determine the goal of the lesson.

Review the lesson questions, discussion questions, and Pocket Questions.

Share with your teammates.

Formative Assessment

Implementing a Hinge Question

Give One, Get One

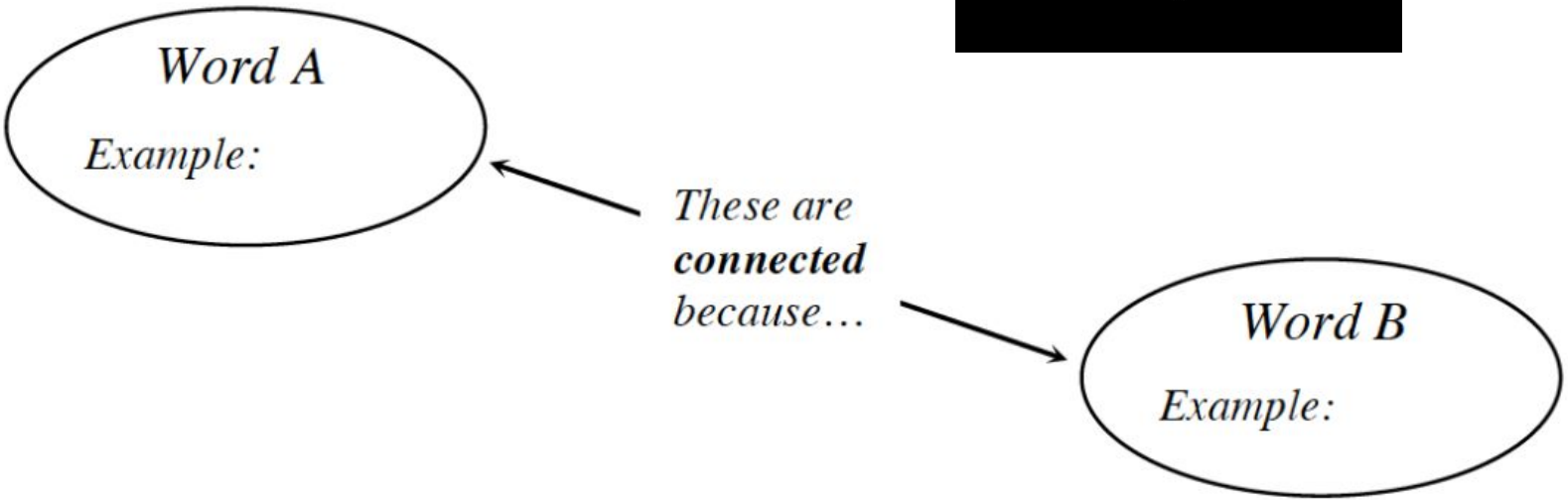
What strategy will you use when implementing these Hinge Questions?

*In what ways can the **Give One, Get One** STTS support effective formative assessment?*

Formative Assessment

Concept Map and Hosted Gallery Walk

Teacher



Hosted Gallery Walk

Lunch Time

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Welcome Back!

Questioning and Talk Moves

CCA - Lesson 4.2.2 - **Listening Post**

Student

Learning Target

Students will examine how a solution to a system of equations relates to those equations and to a graph of those equations.

Success Criteria (Know, Understand, Do)

- Participants know how to describe a solution algebraically or graphically.
- Teams understand the connection between solutions for different representations.
- Participants will use arrows to make connections between solutions.

Questioning and Talk Moves

Formative Assessment

Student

4-42. THE HILLS ARE ALIVE

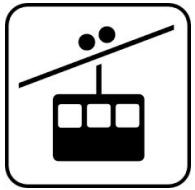
The Alpine Music Club is going on its annual music trip. The members of the club are yodelers, and they like to play the xylophone. This year they are taking their xylophones on a gondola to give a performance at the top of Mount Monch.

The gondola conductor charges $2 for each yodeler and $1 for each xylophone. It costs $40 for the entire club, including the xylophones, to ride the gondola. Two yodelers can share a xylophone, so the number of yodelers on the gondola is twice the number of xylophones.

How many yodelers and how many xylophones are on the gondola?

Your Task:

- Represent this problem with a system of equations. Solve the system and explain how its solution relates to the yodelers on the music trip.
- Represent this problem with a graph. Identify how the solution to this problem appears on the graph.



In what ways can the Listening Post STTS support effective formative assessment?

Questioning and Talk Moves

Reflecting on our Questioning

As a team...

+ Decide which questions assessed your thinking.

+ Decide which questions advanced your thinking.

+ Identify the Hinge Question.

Questioning and Talk Moves

Teacher

Gallery Walk

In what ways can the Notice & Wonder STTS support effective formative assessment?

Individually Gallery Walk the other team's questions.

Have a team discussion to share Notices & Wonders.

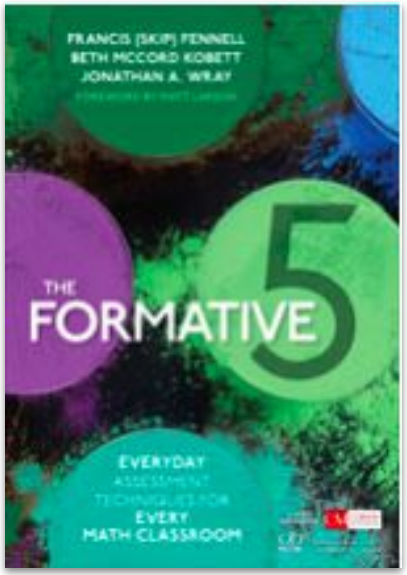
Document your team's Notice & Wonder in the speaker notes.

Questioning and Talk Moves

CCA 4.2.2

Teacher

How were the Formative Five exhibited during the lesson?



The Formative Five

+ Observations
+ Interviews
+ Show Me
+ Hinge Questions
+ Exit Tasks

Hinge Question Tips

- Anticipate possible student responses.
  - If a large percentage of students are unsuccessful:
    - The goal may be too lofty (more likely on a multi-day lesson).
    - The goal may have been assessed too soon.
    - The teacher may have assumed all of the learning authority.
- Use STTS effectively within the lesson.

Questioning and Talk Moves

Talk Moves

Student

Your Task:

+ **Reflect** and **write** a response to the question:

  What is the value of a hinge question?

+ Whole-Class Interview

+ **Reflect** and make **revisions** to your response

Y

+ Moves”

+ ; and

03 Hinge Questions.pdf

04 Talk Moves.pdf

Questioning and Talk Moves

5 Tips for Effective Questioning

1. Plan to use questions that encourage thinking and reasoning.
2. Ask questions in ways that include everyone.
3. Give students time to think.
4. Avoid judging student responses.
5. Follow up on students' responses in ways that encourage deeper thinking.

Swan, M; Pead, D (2008). Professional development resources. Bowland Maths Key Stage 3, Bowland Trust/ Department for Children, Schools and Families. Obtainable in the UK from: http://www.bowlandmaths.org.uk.

Teacher

Reciprocal Teaching

Partner A

A hinge question…

Partner B

Talk moves...

In what ways can the Reciprocal Teaching STTS support effective formative assessment?

Take a Break

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Implementation Planning

Key Ideas

Team Brainstorm

Implementation Planning

With your course-alike team, move to a VNPS and:

1. Choose a standard (or parts of standards) from Chapter 2.
   Remember to consider the nouns/verbs in the standard.
2. For the lessons in Chapter 2 connected to that standard, identify the learning targets and hinge questions and determine success criteria.
3. Use the learning trajectory and suggested assessment plan to determine opportunities for formative assessment(s).
4. Determine any summative assessment questions related to that standard, including when that assessment will be given.

Implementation Planning

Gallery Walk

03:00

Hosted Gallery Walk & Tuning Protocol

What was done well?

This part (____) is very clear.

The most interesting thing in this work is ____.

This (____) helped me understand what you meant by ____.

You're getting better at ____.

What can be improved?

This part (____) could be clearer.

Could you explain your thinking about ____?

I noticed that ____.

I'm not sure I understand ____.

Next steps...

Would you consider changing ____?

Do you think you could ____?

You might consider adding ____.

During revision, you might clarify ____.

Resource Manager

Recorder/Reporter

Facilitator

Implementation Planning

Intentional Planning Time

Day 1

+ Learning Trajectory
+ Questions for Understanding

Day 2

+ Rubrics
+ Self/Peer Assessment Plan

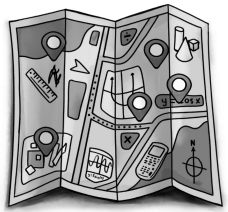
Day 3

+ Formative Assessment
  (Hinge Questions, Learning Trajectory)
+ Questioning Strategies
  (Talk Moves)

Implementation Planning

Assessment Action Plan

Title: Assessment Action Plan



My plan for improving my assessment culture and practices _____.

Consider:

+ What effect will this plan have on your assessment culture?
+ What are your implementation goals?
+ How will you hold yourself accountable?

Closure

What have we learned?

Closure

Day 3 Outcomes

Participants will:

- Gain knowledge of questioning research and apply it to formative assessment.
  - (Modeling the Math Problem and Talk Moves)
- Utilize given tools to gradually transfer the questioning process to students.
  - (Modeling the Math Problem and Talk Moves)
- Gain knowledge of formative assessment research and strategies.
  - (Five Key Strategies for Effective Formative Assessment and Formative Five)
- Plan formative assessments that support summative assessments.
  - (Developing Hinge Point Questions)
- Develop assessment success criteria.
  - (Developing Hinge Point Questions)
- Utilize the chapter progression to support student learning over time.
  - (Implementation Planning)

Closure

Fortune Cookie

Summarize your Learning

+ First person selects a prompt.
+ Each person responds to the prompt.
+ The next person selects a prompt.
+ Each person responds.
+ Continue this process for all prompts.

In what ways can the Fortune Cookie STTS support effective formative assessment?

Reflection

How has the Building On Assessment learning event **impacted** your thinking around assessment design and the role of students in the assessment process?

Write a **one-word summary** to capture the essence of this learning event for you.

Closure

Self-Assessment

CPM EDUCATIONAL PROGRAM

BUILDING ON ASSESSMENT LEARNING EVENT – SELF-ASSESSMENT

Equity and Questioning

Things to Remember:

1. Examine and reflect on equitable assessment practices. (AP5)

Closure

Definition of Assessment

An excellent mathematics program ensures that assessment:

+ is an integral part of instruction;.
+ provides evidence of proficiency with important mathematics content and practice;
+ includes a variety of strategies and data sources; and
+ informs feedback to students, instructional decisions, and program improvement.

Closure

How can the Study Team & Teaching Strategies support effective, formative assessment?

Ambassador	Fishbowl	I Spy	Math Chat	Reciprocal Teaching	Think-Ink-Pair-Share (T.I.P.S)
Carousel: Around the world	Fortune Cookie	Jigsaw: 4 Corners	Notice & Wonder	Red Light, Green Light	Think-Pair-Share
Carousel: Station Rotation	Gallery Walk	Numbered Heads	Participation Quiz	Silent Appointment	Traveling Salesman
Carousel: Index Card	Give One, Get One	Pairs Check (Chat)	Peer Edit	Silent Debate	Tuning Protocol
Dyad	Hot Potato	Participation Quiz	Pick Three	Swapmeet	Walk and Talk
Elevator Talk	Hot Seat	Listening Post	Proximity Partner	Teammates Consult	Whiparound

Closure

Effective Math Teaching Practices

Establish goals to focus learning.

Implement tasks that promote reasoning and problem solving.

Facilitate meaningful mathematical discourse.

Pose purposeful questions.

Elicit and use evidence of student thinking.

Closure

Beliefs about Mathematics Assessment

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	10	Assessment is the process of understanding student learning, and grading is evaluating that understanding. The bulk of the teacher's time should be spent on assessing rather than grading.

Closure

- Parking Lot
- Attendance & Feedback
  - In the Portal
- Continuing Education Credit

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