



Building on Assessment (Virtual) – Session 2

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Rev 5/15/23 (ce)

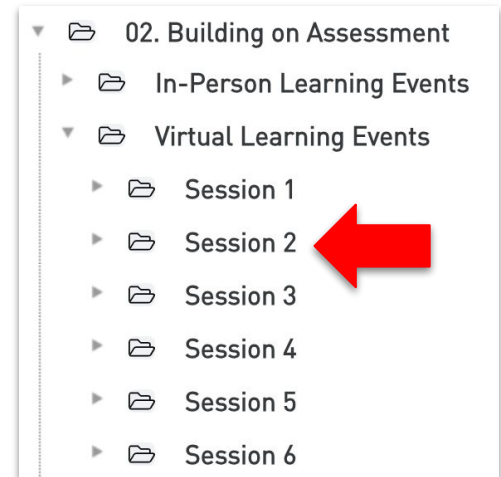
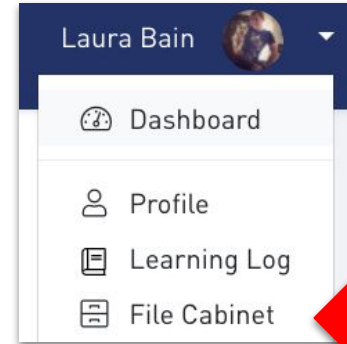
Welcome!

CPM Virtual Learning Series

Building on Assessment – Session 2

What should I do before we get started?

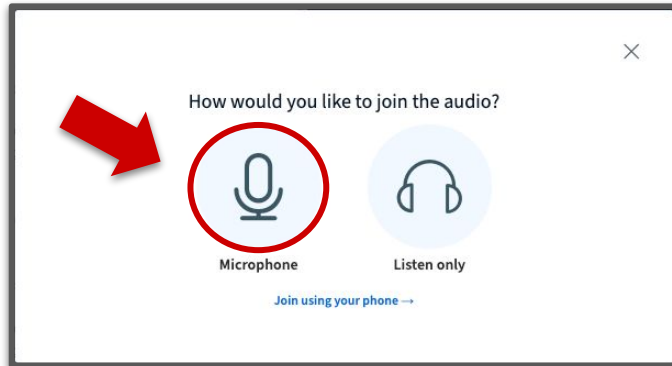
- + Public Chat: Share your favorite dessert.
- + Shared Notes: Type your name under your course.
Type additional courses in parentheses after your name.
- + Open the resources from the File Cabinet.
 - + 00 Productive, Unproductive Beliefs Poster
 - + 01 Hess_Cognitive Rigor Matrix
 - + 02 Sample HS **OR** MS Assessment
 - + 03 High-Quality Assessment Rubric



Tech Tip



Audio



Troubleshooting



Opening

Outcomes



Participants will:

- + Reflect on the efficacy of their current summative assessment practice.
- + Utilize given tools to write a summative assessment.
- + Determine whether assessment questions provide students with the opportunity to demonstrate understanding.

Opening

Agenda



Effective Assessment Questions



- + Opening
- + Evaluating Assessment Items
- + Writing Good Assessments
- + Closure

Opening



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

Set your status to a thumbs up
when you are ready to begin.



Opening

Assessment Questions Icebreaker



Team Task: 10 Minutes

1. Determine team roles by the number of letters in your last name. Introduce yourself. (3 min)

2. Discuss the questions below. (7 min)

Why do we give assessments?

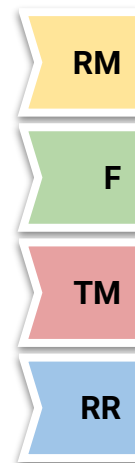
What type of assessments do you use?

How have your assessments changed since using CPM?

How do you know what to assess?

What feedback do your students receive about what you've assessed?

How do you determine proficiency on assessment topics?



Greatest # in last name

Smallest # in last name

Opening

Beliefs about Mathematics Assessment



PRODUCTIVE BELIEF		
N C T M	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.

C P M	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.

Opening

Effective Math Teaching Practices



Establish goals to focus learning.

Pose purposeful questions.

Support productive struggle in learning mathematics.

Elicit and use evidence of student thinking.

Evaluating Assessment Items

Leveraging Assessments



Once you decide what and when to assess, how can you be sure that you create a valid and informative assessment?



Bloom determines the cognition or thinking students are expected to demonstrate as part of a learning experience. That's the verb that starts the educational objective or academic standard.

Webb designates the context—the scenario, setting, and situation—students are expected to use to express and share what they are learning.

Revised Bloom's Taxonomy	Webb's DOK Level 1 Recall & Reproduction	Webb's DOK Level 2 Skills & Concepts	Webb's DOK Level 3 Strategic Thinking/Reasoning	Webb's DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	<ul style="list-style-type: none"> o Recall, observe, & recognize facts, principles, properties o Recall/ identify conversions among representations or numbers (e.g., customary and metric measures) 	Use these Hess CRM curricular examples with most mathematics or science assignments or assessments.		
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion), predict, compare/contrast, match like ideas, explain, construct models	<ul style="list-style-type: none"> o Evaluate an expression o Locate points on a grid or number on number line o Solve a one-step problem o Represent math relationships in words, pictures, or symbols o Read, write, compare decimals in scientific notation 	<ul style="list-style-type: none"> o Specify and explain relationships (e.g., non-examples/examples; cause-effect) o Make and record observations o Explain steps followed o Summarize results or concepts o Make basic inferences or logical predictions from data/observations o Use models /diagrams to represent or explain mathematical concepts o Make and explain estimates 	<ul style="list-style-type: none"> o Use concepts to solve non-routine problems o Explain, generalize, or connect ideas using supporting evidence o Make and justify conjectures o Explain thinking/reasoning when more than one solution or approach is possible o Explain phenomena in terms of concepts 	<ul style="list-style-type: none"> o Relate mathematical or scientific concepts to other content areas, other domains, or other concepts o Develop generalizations of the results obtained and the strategies used (from investigation or readings) and apply them to new problem situations
Apply Carry out or use a procedure in a given situation; carry out (apply to a familiar task), or use (apply) to an unfamiliar task	<ul style="list-style-type: none"> o Follow simple procedures (recipe-type directions) o Calculate, measure, apply a rule (e.g., rounding) o Apply algorithm or formula (e.g., area, perimeter) o Solve linear equations o Make conversions among representations or numbers, or within and between customary and metric measures 	<ul style="list-style-type: none"> o Select a procedure according to criteria and perform it o Solve routine problem applying multiple concepts or decision points o Retrieve information from a table, graph, or figure and use it solve a problem requiring multiple steps o Translate between tables, graphs, words, and symbolic notations (e.g., graph data from a table) o Construct models given criteria 	<ul style="list-style-type: none"> o Design investigation for a specific purpose or research question o Conduct a designed investigation o Use concepts to solve non-routine problems o Use & show reasoning, planning, and evidence o Translate between problem & symbolic notation when not a direct translation 	<ul style="list-style-type: none"> o Select or devise approach among many alternatives to solve a problem o Conduct a project that specifies a problem, identifies solution paths, solves the problem, and reports results
Analyze Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct	<ul style="list-style-type: none"> o Retrieve information from a table or graph to answer a question o Identify whether specific information is contained in graphic representations (e.g., table, graph, T-chart, diagram) o Identify a pattern/trend 	<ul style="list-style-type: none"> o Categorize, classify materials, data, figures based on characteristics o Organize or order data o Compare/ contrast figures or data o Select appropriate graph and organize & display data o Interpret data from a simple graph o Extend a pattern 	<ul style="list-style-type: none"> o Compare information within or across data sets or texts o Analyze and draw conclusions from data, citing evidence o Generalize a pattern o Interpret data from complex graph o Analyze similarities/differences between procedures or solutions 	<ul style="list-style-type: none"> o Analyze multiple sources of evidence o Analyze complex/abstract themes o Gather, analyze, and evaluate information
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique	<ul style="list-style-type: none"> o "UG" – unsubstantiated generalizations = stating an opinion without providing any support for it! 		<ul style="list-style-type: none"> o Cite evidence and develop a logical argument for concepts or solutions o Describe, compare, and contrast solution methods o Verify reasonableness of results 	<ul style="list-style-type: none"> o Gather, analyze, & evaluate information to draw conclusions o Apply understanding in a novel way, provide argument or justification for the application
Create Reorganize elements into new patterns/structures, generate, hypothesize, design, plan, produce	<ul style="list-style-type: none"> o Brainstorm ideas, concepts, or perspectives related to a topic 	<ul style="list-style-type: none"> o Generate conjectures or hypotheses based on observations or prior knowledge and experience 	<ul style="list-style-type: none"> o Synthesize information within one data set, source, or text o Formulate an original problem given a situation o Develop a scientific/mathematical model for a complex situation 	<ul style="list-style-type: none"> o Synthesize information across multiple sources or texts o Design a mathematical model to inform and solve a practical or abstract situation

Evaluating Assessment Items

Reflection



How might your awareness of the Cognitive Rigor Matrix impact items you write or choose for individual and team assessments?

Evaluating Assessment Items



How do we evaluate the quality
of an assessment?

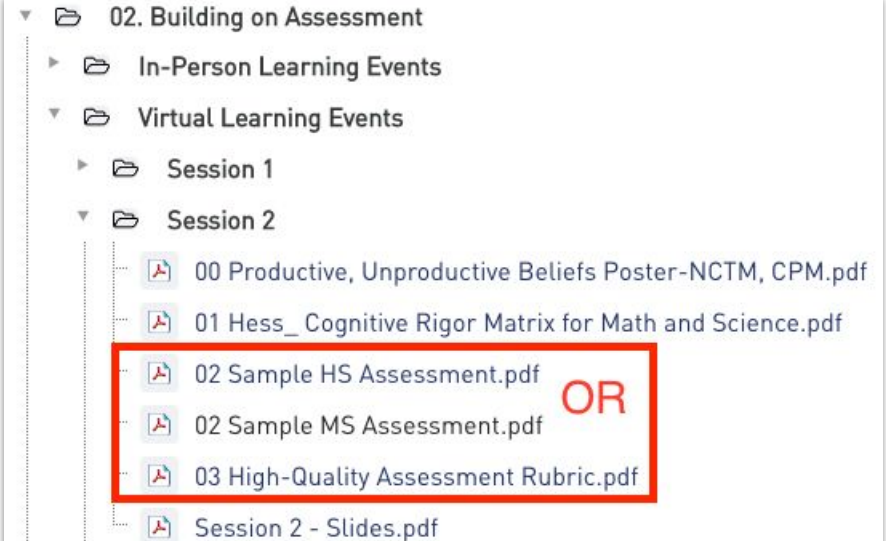
Evaluating Assessment Items

Evaluating Quality



YOUR TASK:

1. Open the rubric and an assessment from the File Cabinet.
2. Evaluate the assessment in each category of the High-Quality Assessment Rubric.



Evaluating Assessment Items

Team Room Task Card



Team Task: 12 Minutes

1. Read the task card. The **Task Manager** will keep track of the time. (1 min)
2. Evaluate the assessment for each criterion on the High-Quality Assessment Rubric. (9 min)
 - a. The **Facilitator** will read the first criteria aloud.
 - b. The **Resource Manager** will lead a discussion to classify the assessment.
 - c. Repeat for each criteria.
3. Discuss the strengths and weaknesses of the assessment. The **Recorder/Reporter** will record these thoughts. Be prepared to share! (2 min)

Screen Break

Take a break and walk away from the computer.



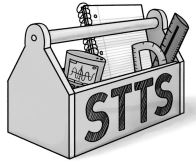
Share your experience using

#MoreMath
#MOREMATH
#moremath



Writing Good Assessments

Characteristics of Questions that
Demonstrate Student Understanding



Think-Ink-Pair-Share

Think of an assessment item that allows students to demonstrate learning and use flexible thinking to show understanding.

In the Public Chat, “**ink**” characteristics of that assessment item.



Writing Good Assessments

Characteristics of Questions that Demonstrate Student Understanding

Learning Objective: *Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease.*

Marty purchased a jacket at a discounted price. The original price was \$90. If the jacket was 20% off, calculate the discounted price of the jacket.

Be sure to explain your thinking. Represent your thinking in more than one way. How do you know that your answer is correct?

Writing Good Assessments

Research



Students who understand a concept can:

- + use it to make sense of and explain quantitative situations (Model with Mathematics);
- + incorporate it into their own arguments and use it to evaluate the arguments of others (Construct viable arguments and critique the reasoning of others);
- + bring it to bear on the solutions to problems (Make sense of problems and persevere in solving them); and
- + make connections between it and related concepts.

Dr. James Williams, NCCTM, October, 2011



What have we discussed?

Identifying formative and summative assessment targets in CPM.

Recognizing DOK level.

Characteristics of assessment items that demonstrate student understanding.

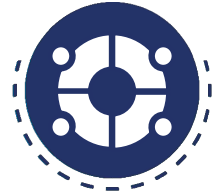
Writing Good Assessments

Writing an Assessment Item



Writing Good Assessments

Team Room Task Card



Team Task: 20 Minutes

1. Read your team role. (1 min)
2. Identify a topic from Chapter 2 or 3 that is appropriate to assess. (4 min)
3. Write the item at a DOK 3 level or above. (10 min)
4. Evaluate *another* team's problem using the High-Quality Assessment Rubric. Type two strengths and a suggestion in their Speaker Notes. (5 min)

RM

Make certain all team members are included in the conversation.

F

Lead the discussion to select a topic from the Chapter Opening.

TM

Keep track of the time, especially for tasks 2 & 3.

RR

Lead the evaluation discussion using the High-Quality Assessment Rubric.

Closure

Revisions and Reflection



Title: Writing Good Assessment Items.



Insert your item into your Learning Log.

Review the two strengths and suggestion as you consider revisions.

Consider:

- + *What misconceptions do you hope to uncover by using this assessment item?*
- + *What strategies do you think students will use on this item?*
- + *What might hinder a student from being successful with this item?*

Closure

Outcomes



Participants will:

- + Reflect on the efficacy of their current summative assessment practice
 - + **Assessment Carousel**
- + Utilize given tools to write a summative assessment.
 - + **Writing Good Assessments**
- + Determine whether assessment questions provide students with the opportunity to demonstrate understanding.
 - + **Evaluating Assessment Items, Writing Good Assessments**

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	Huddle	Pick Three	Swapmeet	Walk and Talk
Elevator Talk	Hot Seat	Listening Post	Proximity Partner	Teammates Consult	Whiparound

Closure

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Closure

Effective Math Teaching Practices



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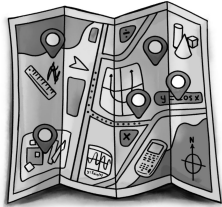
Elicit and use evidence of student thinking.

Closure

Assessment Action Plan



Title: Summative Assessment Practices



I plan on implementing the following idea(s) from today's sessions.

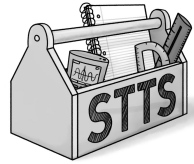


Consider:

- + Why you chose the item(s).
- + How you will hold yourself accountable.
- + What successful implementation will look like.

Closure

Whiparound



How will you hold yourself accountable for implementing these ideas?

Closure



- + Parking Lot
- + Attendance & Feedback
 - In the Portal
- + **Homework:** On-Demand Module
 - Activity 1: Prior to Session 1
 - Activity 2: Prior to Session 3
- + Continuing Education Credit



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