The New York State Office of Religious and Independent Schools

PROFESSIONAL DEVELOPMENT RESOURCE CENTER

The Upstate Region-all regions north of NYC

Checking for Student Understanding

Presented by Rebecca Shea and Diana Straut
Measurement Incorporated
rshea@measinc.com or dstraut@measinc.com
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Objectives

Learn simple strategies to use in daily planning and teaching to check for understanding in all content areas

Explore some lo-tech and no tech strategies for checking for understanding across all content areas

Dialogue together and share resources related to using checks for understanding to enhance teaching and learning

Why do *you* Check for Understanding?

https://docs.google.com/presentation/d/1ai-h2Tl64fy7wGid6V3mPU-Le_7Hc0uZUd74r_Xfc1A/copy

Backward Design

Learning Target	What do you want them to know?
Assessment 	How will you know they've learned it? (*Gather acceptable evidence*)
Instruction	How will you teach to help them learn it?

https://www.tes.com/lessons/X6x9lYQSYDoVlw/formative-vs-summative-assessments

	Formative	Summative
	Learn	Measure
When?	Before or during instruction	End of instruction
Purpose?	Guide the teacher in planning and improving instruction; help students improve learning	Let teachers and students know the level of accomplishment attained.

Check for Understanding to…

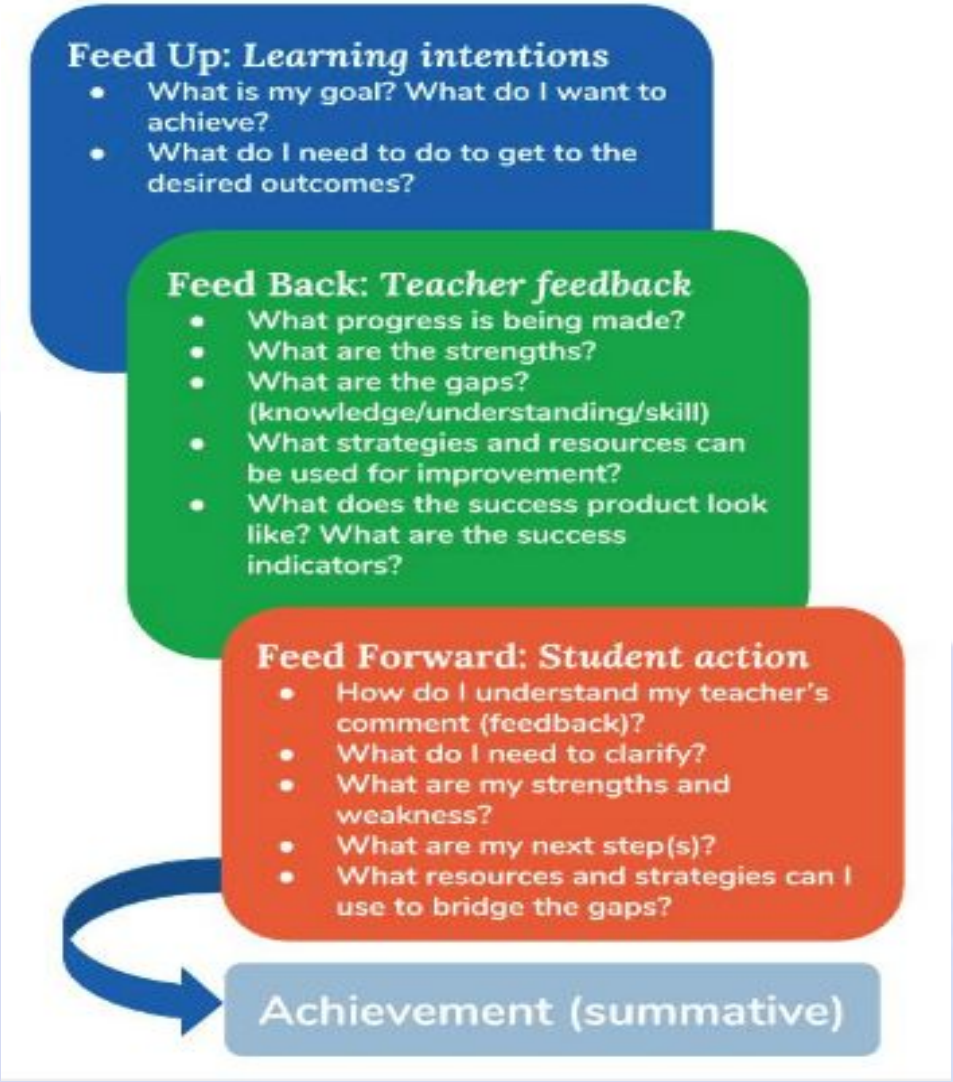
Feed Learning Up: Clarifying the purpose, what you are learning, why, and how. *Where am I currently and where am I going?*

Feed Learning Back: Respond to student work to identify student success to repeat & what types of errors students made to reteach. How am I doing? Making progress toward goal…

Feed Learning Forward: Identify ways you need to modify instruction moving forward.
Where to next?

Click here to learn more here about these 3 CFU

Source: Fisher & Frey



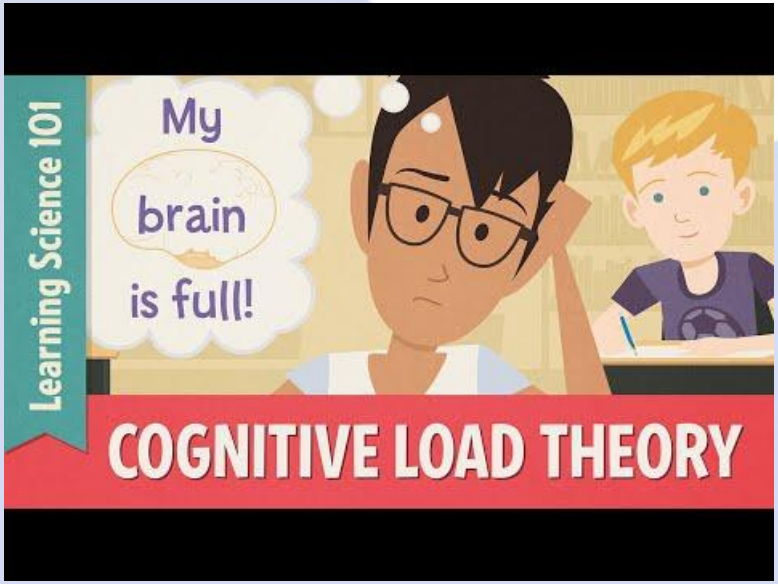
https://alisonyang.weebly.com/blog/develop-student-assessment-literacy

CHECKING for UNDERSTANDING

- Greater participation and engagement [1]
- Higher achievement [2]
- Assists with lesson pacing
- Differentiate instruction
- Fosters metacognition
- 7±2=

Cognitive Load & CFU

“The human brain can only process a small amount of new information at once, but it can process very large amounts of stored information.” ~ Centre for Education and Statistics & Evaluation



Seed Analogy for Cognitive Load

Intrinsic Load
What do students already know?

Example: Subject matter for one student might be easy but harder for another student (impacts complexity & prior knowledge).

Germane
What is just right for their learning?

Example: The student is explicitly taught how to solve the problem and given lots of worked examples demonstrating how to do it.

Extraneous Load
What is too much for them?

Example: The student is required to figure out how to solve the equation themselves, with minimal guidance from the teacher.

Chunking Content Delivery to Check for Understanding

Engagement Activity:
CFU: Activate Prior Knowledge

8-12 Minutes -
Direct Instruction
(lecture or demonstration)

3-4 Minutes -
Process Time/Check for Understanding

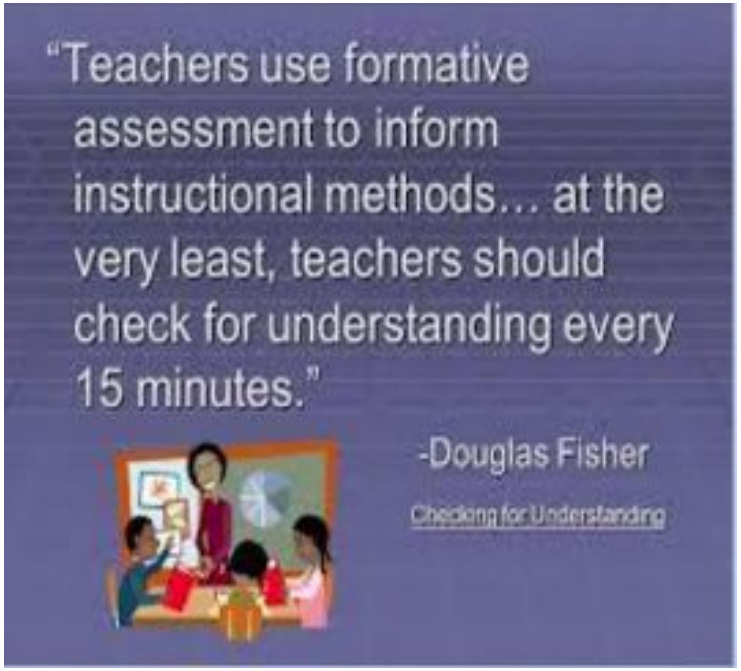
8-12 Minutes -
Direct Instruction

3-4 Minutes -
Process/CFU

8-12 Minutes -
Direct Instruction

5-10 Minutes -
Summary/ Closure
Indep. Application

Every phase of instruction should be accompanied by a means of checking for understanding



“It’s not teaching that causes learning. Attempts by the learner to perform cause learning, dependent upon the quality of feedback and opportunities to use it .”

Grant Wiggins

ERROR vs MISTAKE

ERROR – getting something wrong and not knowing what the right answer is

MISTAKE – getting something wrong and knowing/understanding that it was wrong

Source: In Love with English by D. Newell

Type of Error	Definition/Example
Factual Errors	Interfere with ability for accuracy (e.g., Ss not understanding difference between recessive & dominant traits)
Procedural Errors	Difficulty in applying the factual information (e.g., Ss can explain the difference between math concepts but struggle with applying it in the necessary steps)
Transformation Error	Incorrectly apply information in a new situation (e.g., Ss learn the facts, procedures but have difficulty applying this in new situations)
Misconception Error	Not having clear understanding, can result from teaching itself (e.g., Ss misunderstand and it affects them being able to acquire & apply learning)

Source: Fisher & Frey

Identify & Teach

Global Errors:	**Targeted Errors:**
Requires a teacher to reteach content *in a new way* to an entire class instead of to individual students (e.g., 80% of students did not understand, ⅗ students made a type of error)	Requires a teacher to meet with small groups of students to reteach content i*n a new way* to individual or a small amount of students (e.g., ⅕ students made one type of error, 20% of students did not understand)

Source: Fisher & Frey

Guiding Questions for Teachers

1. Do I know or understand the misconceptions or assumptions students possess about the content or concept?
2. How do I know they understand?
3. What evidence will I accept for this understanding?
4. How will I use their understandings to plan future instruction?

Source: Fisher & Frey

Checking the Pulse on Engagement

Behavioral engagement is related to attendance, participation, and positive conduct. It includes involvement in classroom learning, academic tasks, and school related-activities.

Cognitive engagement focuses on students' level of investment in learning and draws on the self-regulation and strategy use literatures. It includes being thoughtful and purposeful and willing to exert the effort necessary for the comprehension of cognitively complex ideas and the acquisition of difficult skills.

Emotional engagement focuses on the extent of positive (e.g., happy, interested, and excited) and negative (e.g., anxiety, boredom) reactions to the school, teacher,and activities. Some scholars also have defined emotional engagement as feelings of belonging and valuing of school.

Source: Fredericks, J., 2011. *Engagement in School and Out-of-School Contexts: A Multidimensional View of Engagement*

SO. MANY. OPTIONS.

THINK --INK--SHARE

WHAT ARE YOUR

'GO -TO'

WAY(S) OF CHECKING FOR UNDERSTANDING?

DIPSTICKING

SIGNALS

Self-Evaluation

- thumbs up
- hands on head if…
- sign turned over
- colored cups
- red, yellow, green cards

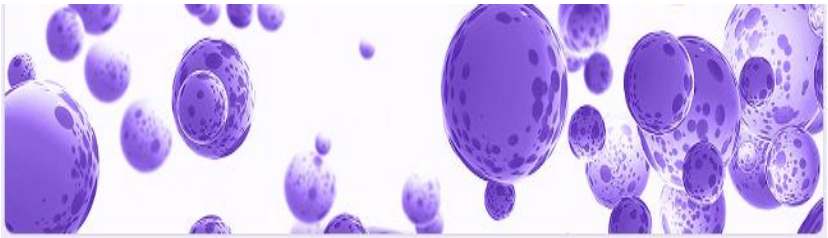
Direct Content Check

- fingers make math operation sign
- which punctuation mark (. ! ?)
- colored strips
- individual white boards
- clap anytime you hear a primary color

NON-SIGNALS

- one-question quiz
- unison response
- lots of questions on same concept to many students
- verbal fill-in the blank sentences
- short writing assignment
- drawing a picture of…

https://slideplayer.com/slide/4535387/



60 Second Brain Dump

Topic: Checking for Understanding

NAME:

Your answer

Write down everything you know about (the topic at the top of this paper). Don't worry about being wrong or right-tell me everything you think you know.

Your answer

Submit

Image Prompt

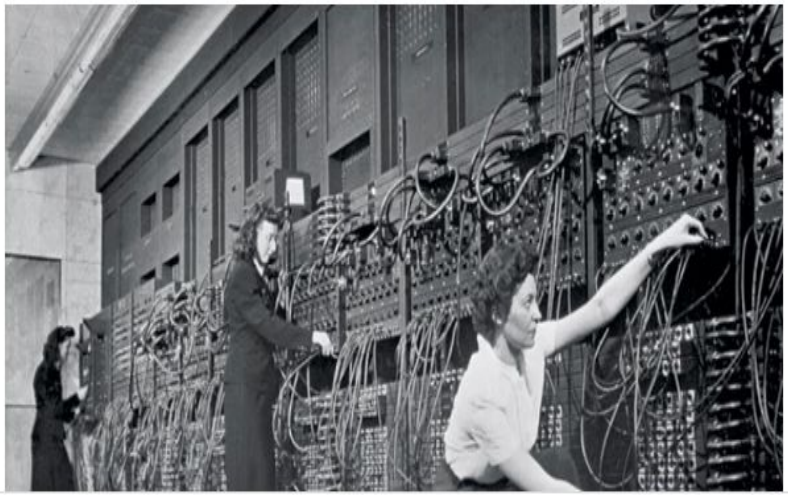
Please respond to the following image prompt.

* Required

Email address *

Your email

What title would you give this image:



https://www.thelandscapeoflearning.com/2017/05/15-formative-assessments-with-google.html

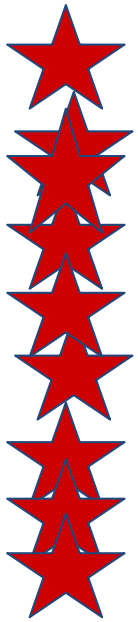
Spectrogram--as a CFU Strategy

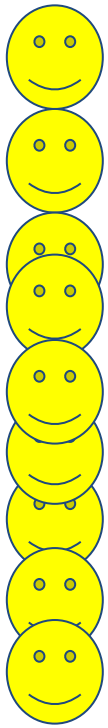
Prior to the Lesson

After the Lesson

I know a lot about Checking for Understanding :

The purpose of it, how to do it and how to give feedback





I know nothing about CFU.

I have never done it or have very little experience with it and don't know any strategies for how to do it.

Drag and drop to put your name on the spectrum:

Prompt: Rate your understanding of (Today's Lesson Topic)

(eg: can you use the formula for slope to complete your work independently?

1

I have some questions

5

I am ready to apply this and work independently

Name Name Name Name Name Name Name Name Name Name Name Name

Drag and drop to put your name on the spectrum:

Prompt: Rate your understanding of (Today's Lesson Topic)

(or: can you use the formula for slope to complete your work independently?

Name	Name	Name	Name	Name	Name
Name	Name	Name	Name	Name	Name

Drag and drop to put your name on the spectrum:

Prompt: Rate your understanding of (Today's Lesson Topic)

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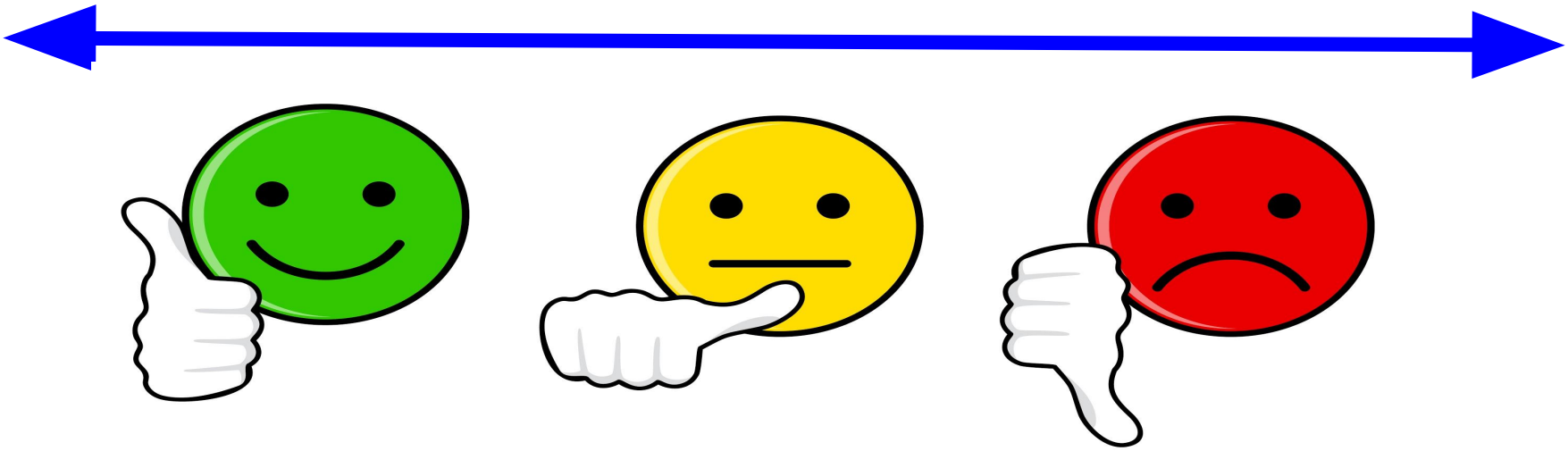

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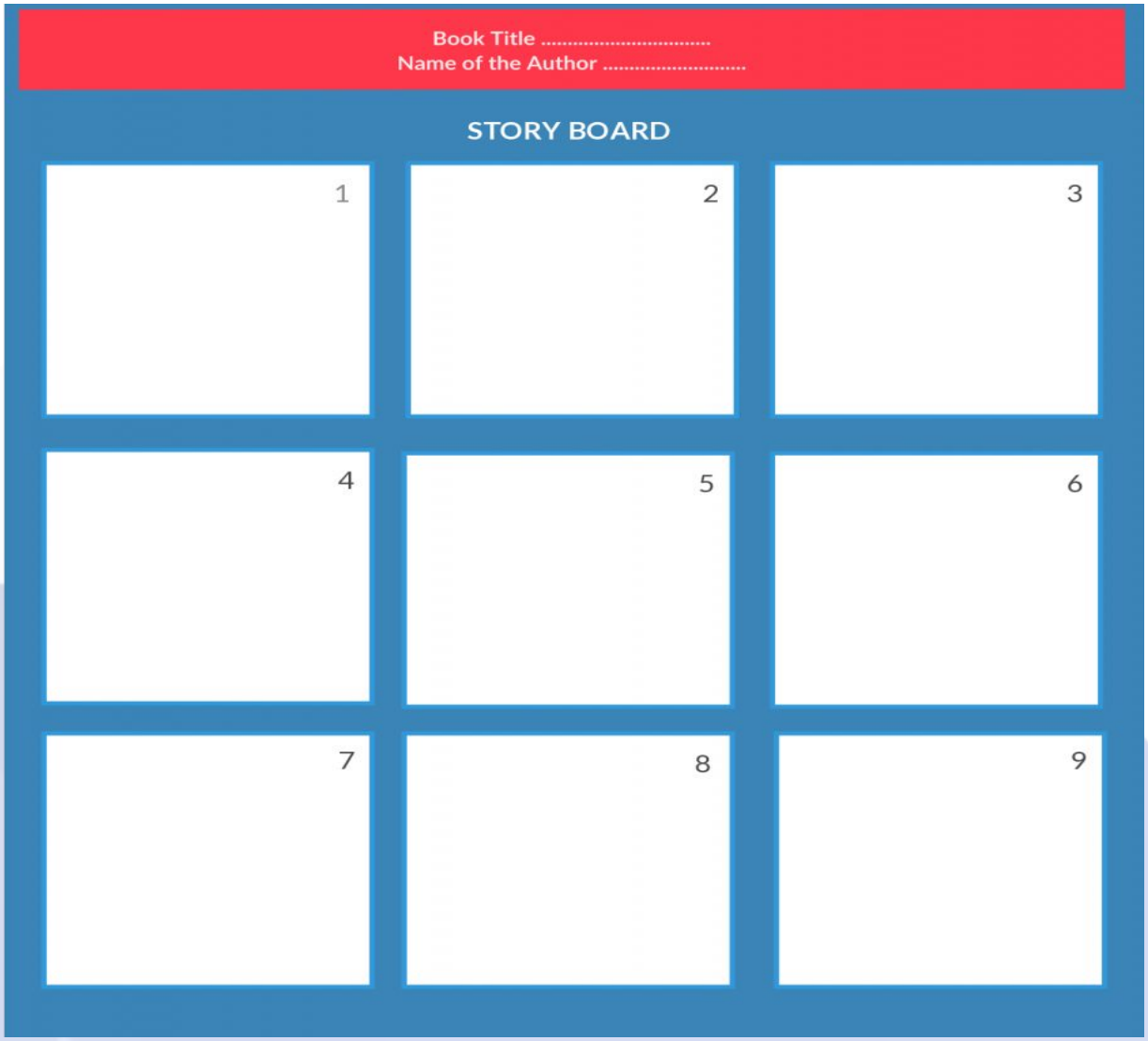


https://creately.com/blog/examples/storyboard-templates-creately/

"Active learning involves students' efforts to actively construct their knowledge."

Definition provided by:
National Survey of Student Engagement (NSSE) & the Australasian Survey of Student Engagement (AUSSE)

"Checking for understanding through questioning should not be thought of as a simple two-step process (question and answer), but rather as a complex progression as the teacher formulates and then listens to the response of the learner." - Fisher & Frey

4 Distinct Steps to the Questioning Process:

1. Prepare the question
2. Presenting the question
3. Prompting the student responses
4. Processing student responses
5. Reflecting on questioning practices

Source: Walsh & Scott (2011)

Make Thinking Visible

Study investigated the ***influence*** *of online* ***scaffolding*** *designed to* ***facilitate students' adaptive questioning strategies and learning*** *during 501 online discussions.*

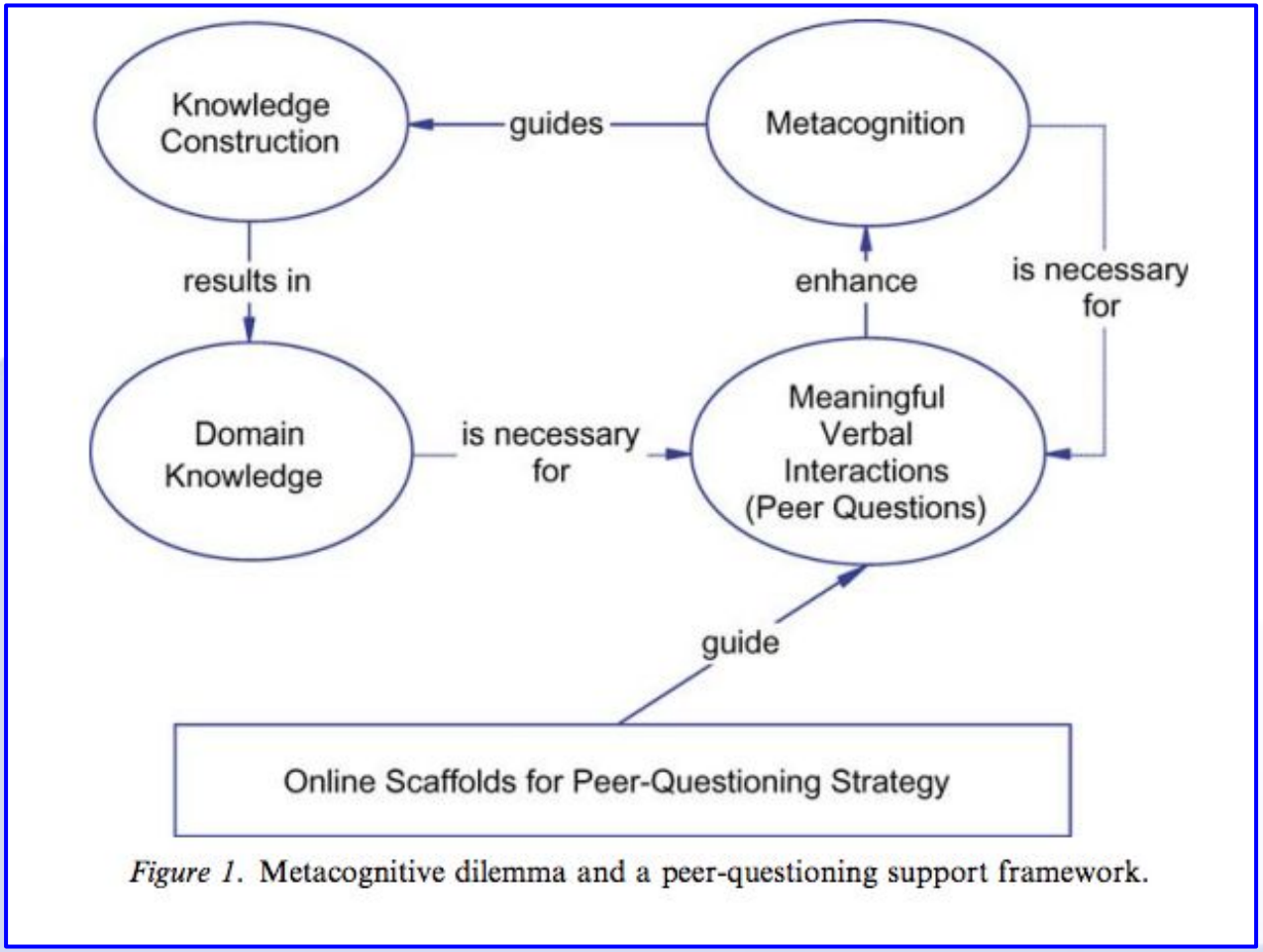
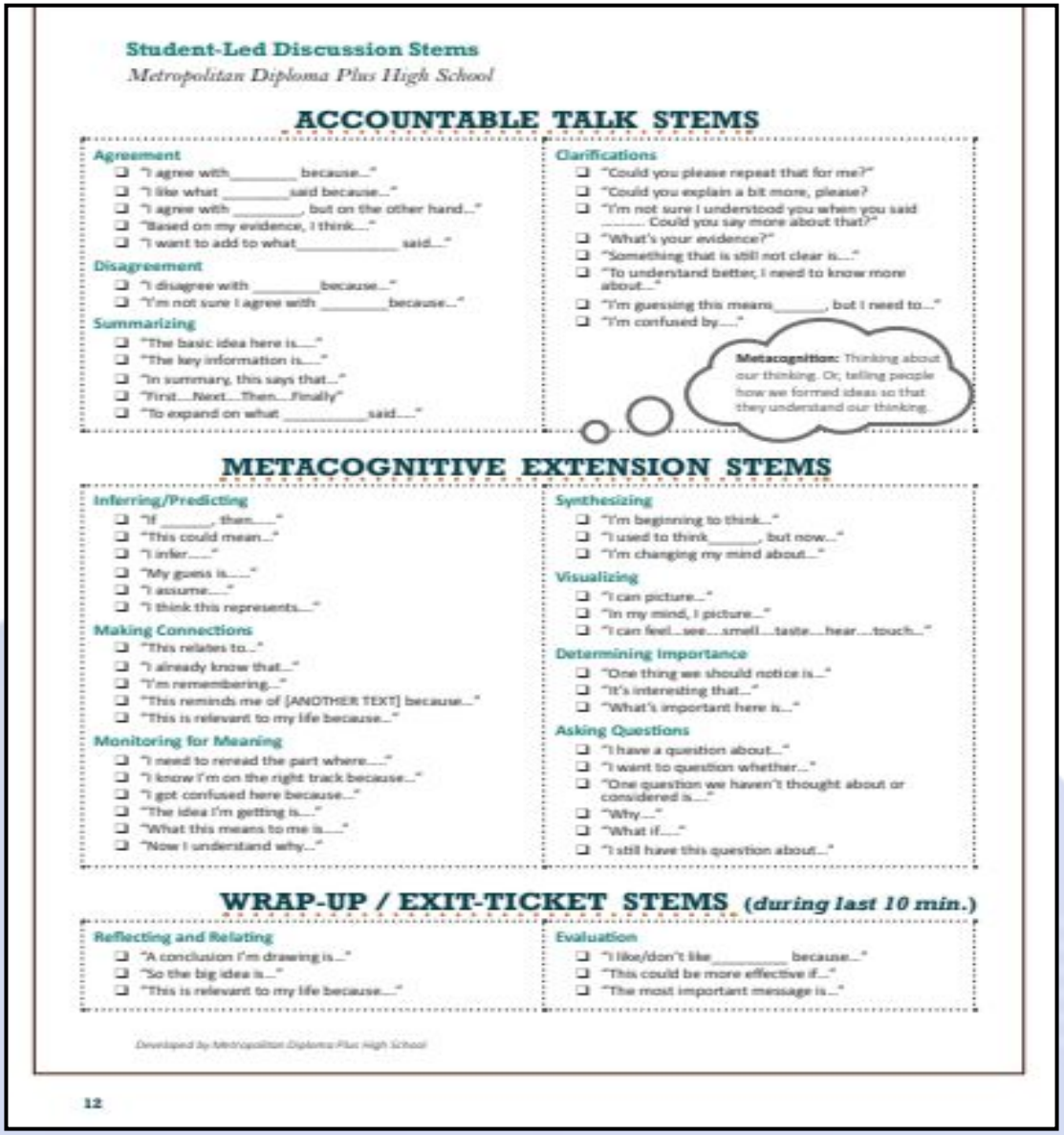


Figure 1. Metacognitive dilemma and a peer-questioning support framework.

Source: Choi, I., Land, S.M. & Turgeon, A.J. Scaffolding Peer-questioning Strategies to Facilitate Metacognition During Online Small Group Discussion. *Instr Sci* 33, 483–511 (2005). https://doi.org/10.1007/s11251-005-1277-4

Discussion Stems

Accountable Talk Stems	Metacognition Stems	Wrap Up Stems
Allows students to **enter into the discussion** by explaining their agreement/disagreement and give **evidence for why.**	Helps students understand complex ideas and develop their own meaning of the new information. ***Links to building on our working memory.***	Helps students reflect on their thinking and learning. Identifies what might be **needed in future discussions.**



Student-Led Discussion Stems

Metropolitan Diploma Plus High School

ACCOUNTABLE TALK STEMS

Agreement
- ❑ "I agree with_____ because..."
- ❑ "I like what _____said because..."
- ❑ "I agree with _____, but on the other hand..."
- ❑ "Based on my evidence, I think..."
- ❑ "I want to add to what_____ said..."

Disagreement
- ❑ "I disagree with _____because..."
- ❑ "I'm not sure I agree with _____because..."

Summarizing
- ❑ "The basic idea here is....."
- ❑ "The key information is....."
- ❑ "In summary, this says that..."
- ❑ "First....Next....Then....Finally"
- ❑ "To expand on what _____said....."

Clarifications
- ❑ "Could you please repeat that for me?"
- ❑ "Could you explain a bit more, please?
- ❑ "I'm not sure I understood you when you said ..... Could you say more about that?"
- ❑ "What's your evidence?"
- ❑ "Something that is still not clear is...."
- ❑ "To understand better, I need to know more about..."
- ❑ "I'm guessing this means_____, but I need to..."
- ❑ "I'm confused by....."

Metacognition: Thinking about our thinking. Or, telling people how we formed ideas so that they understand our thinking.

METACOGNITIVE EXTENSION STEMS

Inferring/Predicting
- ❑ "If _____, then....."
- ❑ "This could mean..."
- ❑ "I infer....."
- ❑ "My guess is....."
- ❑ "I assume...."
- ❑ "I think this represents..."

Making Connections
- ❑ "This relates to..."
- ❑ "I already know that..."
- ❑ "I'm remembering..."
- ❑ "This reminds me of [ANOTHER TEXT] because..."
- ❑ "This is relevant to my life because..."

Monitoring for Meaning
- ❑ "I need to reread the part where....."
- ❑ "I know I'm on the right track because..."
- ❑ "I got confused here because..."
- ❑ "The idea I'm getting is...."
- ❑ "What this means to me is....."
- ❑ "Now I understand why..."

Synthesizing
- ❑ "I'm beginning to think..."
- ❑ "I used to think_____, but now..."
- ❑ "I'm changing my mind about..."

Visualizing
- ❑ "I can picture..."
- ❑ "In my mind, I picture..."
- ❑ "I can feel...see....smell....taste....hear....touch..."

Determining Importance
- ❑ "One thing we should notice is..."
- ❑ "It's interesting that..."
- ❑ "What's important here is..."

Asking Questions
- ❑ "I have a question about..."
- ❑ "I want to question whether..."
- ❑ "One question we haven't thought about or considered is...."
- ❑ "Why...."
- ❑ "What if....."
- ❑ "I still have this question about..."

WRAP-UP / EXIT-TICKET STEMS (*during last 10 min.*)

Reflecting and Relating
- ❑ "A conclusion I'm drawing is..."
- ❑ "So the big idea is..."
- ❑ "This is relevant to my life because...."

Evaluation
- ❑ "I like/don't like_____ because..."
- ❑ "This could be more effective if..."
- ❑ "The most important message is..."

Developed by Metropolitan Diploma Plus High School

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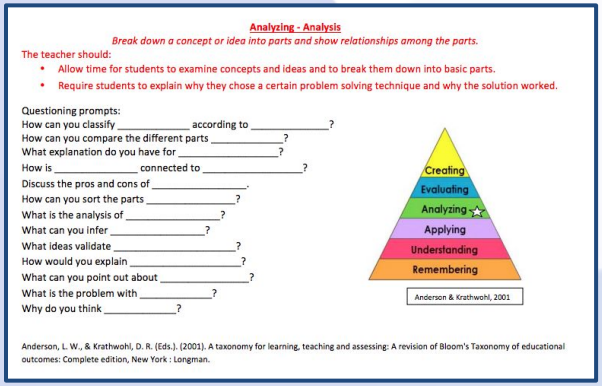
Source:
https://www.springpointschools.org/media/2018/10/higher_order_thinking_through_academic_discussion.pdf

Bloom's Taxonomy

Source: https://www.unthsc.edu/center-for-innovative-learning/blooms-taxonomy-learning-objectives-and-higher-order-thinking/



Analyzing - Analysis

Break down a concept or idea into parts and show relationships among the parts.

The teacher should:

- Allow time for students to examine concepts and ideas and to break them down into basic parts.
- Require students to explain why they chose a certain problem solving technique and why the solution worked.

Questioning prompts:

How can you classify _____ according to _____?
How can you compare the different parts _____?
What explanation do you have for _____?
How is _____ connected to _____?
Discuss the pros and cons of _____.
How can you sort the parts _____?
What is the analysis of _____?
What can you infer _____?
What ideas validate _____?
How would you explain _____?
What can you point out about _____?
What is the problem with _____?
Why do you think _____?

Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). A taxonomy for learning, teaching and assessing: A revision of Bloom's Taxonomy of educational outcomes: Complete edition, New York : Longman.

Source: https://education.illinoisstate.edu/downloads/casei/5-02-Revised%20Blooms.pdf

https://docs.google.com/forms/d/e/1FAIpQLSfYvFJWAQlqm06I9z_FrF8oGjRFG8P2jHX1HFDT9yuBzK_yAQ/viewform?copy

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https://www.thelandscapeoflearning.com/2017/05/15-formative-assessments-with-google.html

Your Turn

GIVE ONE GET ONE in Break out Room

- Describe a CFU strategy that you use in F2F classroom. How could you adapt it for virtual/remote teaching?

or

- Describe how you might use a strategy you saw today with your students (modify, simplify, adapt, make more complex)

Your Feedback Matters

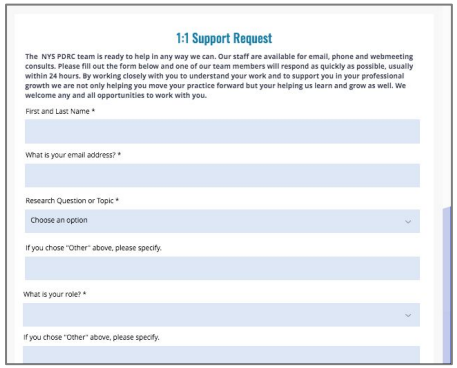
- Please fill out the evaluation link in the chat box now, or ASAP.

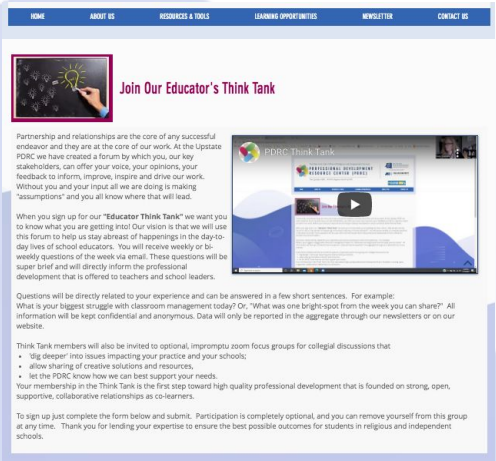
http://www.mievaluation.com/PDRC/Feedback_Upstate.html

- Watch for a follow up email with links to the evaluation as well as PPT slides and resources from this session.

Thank you for participating!

Visit our website & reach out for support!





https://www.nysed-soris-upstate-pdrc.org/

	Behavioral	Cognitive	Social-Emotional (Affective)
What is it?	• On task • You can see it • Objective	• Doing the learning • Thinking their teacher intended from activity • Authentic engagement (vs. strategic compliance)	• Connectedness • Belonging • Physical & psychological safety
How to measure?	• Time on task • Instructional time • Student disruptions • Number of questions ask	• Responses (correct, quality, depth of knowledge) • Interviews, short answer, reflection	• Assess emotional state • Gather their feedback • Interactive journals
How to teach it?	• Behavior expectations • Positive reinforcements • Fluent correction	• Clear description of learning outcomes • Thinking prompts • Effective questions • Formative assessment • Feedback • Student voice	• Positive student-teacher relationships • Demonstrating empathy • Help manage emotions