Intellectual Engagement Resources

Contents

R

Traffic Light Protocol

Materials

red sticker dots
yellow sticker dots
green sticker dots
chart paper

Protocol

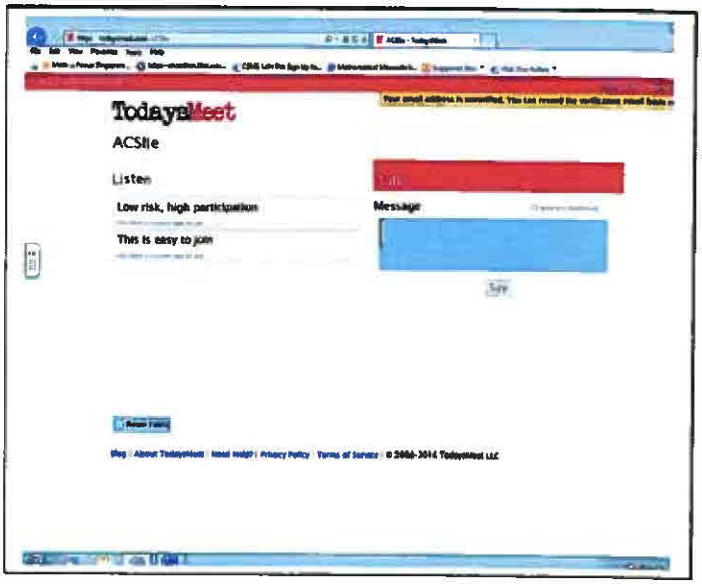
Pre-hang sheets of chart paper around the room (each sheet has a different teacher practice written on it)
Participants are given an assortment of colored dots
Participants circulate the room and read the various teacher practices
Participants place their dots on the chart paper, as follows, based on how often they employ the particular practice outlined

- red dot rarely
  yellow dot sometimes
- green dot often

Debrief:

> Reflection on what is observed regarding the colors posted on the chart paper
> Share research to validate planning for intellectual engagement as an essential component of teacher practice

todaysmeet.com



You can start a class discussion right away...

Go to todaysmeet.com

Pick a name for your discussion and type it where it says, **Pick a Name**. The name cannot have any spaces in it.

Decide on how long you want the discussion to remain opened and select an amount of time (anywhere between an hour and a year) under where it says, **Keep the room open for**.

Click on the blue rectangle that says **Open your room**.

In order for students to join, they just need to type todaysmeet.com/the name of the room you started. For instance, if the room you created was called summerworkshop, it would be

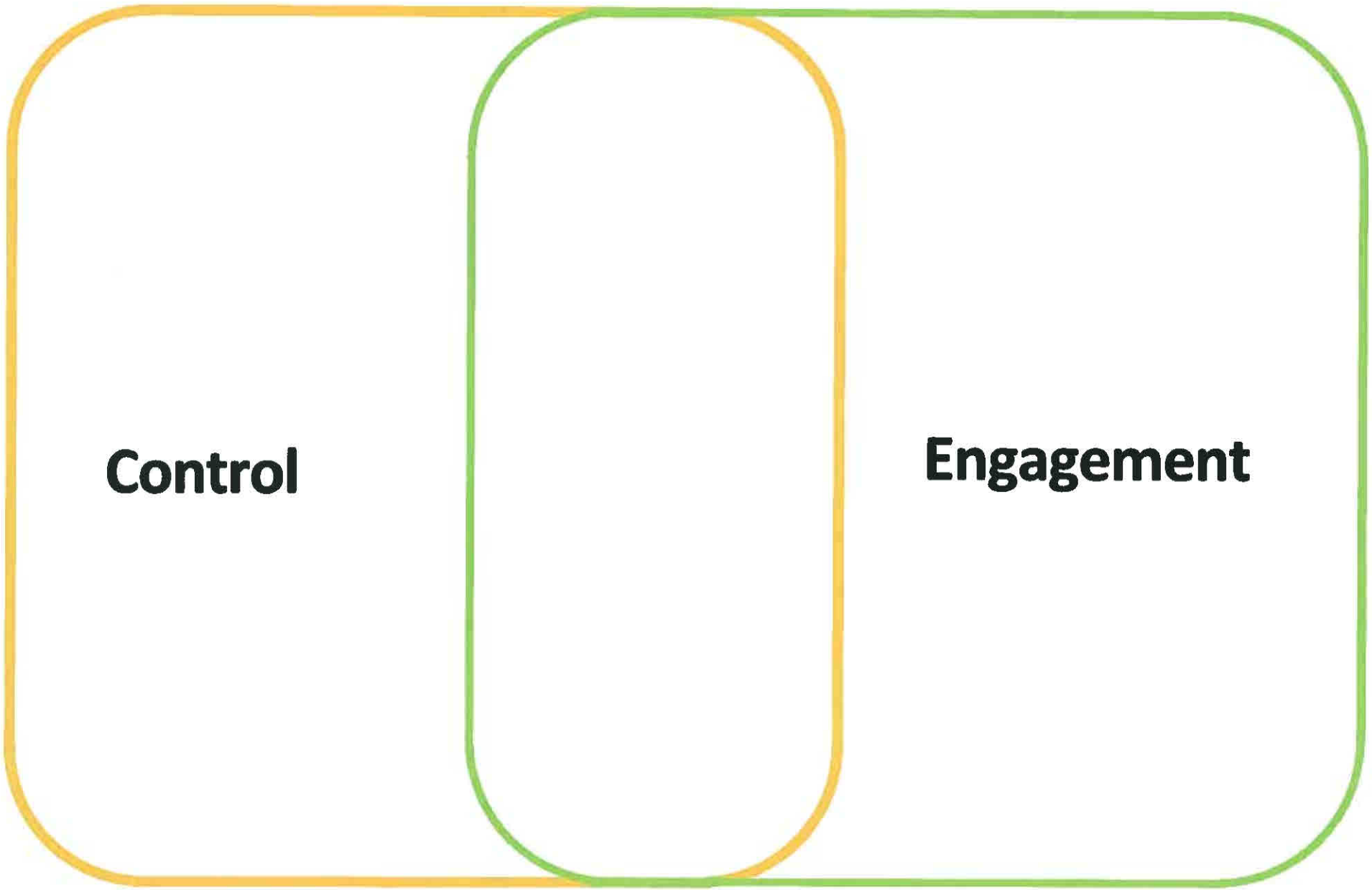
todaysmeet.com/summerworkshop

You can sign up if you want to keep track of the different rooms you have going on within your classroom.

Web based: can be used on laptops, desktops, chrome books, iPads

You can print the transcripts of the chatroom by going to the little blue box that says **Room Tools** and clicking on the word **transcripts**.

Classroom Management



National School Reform Faculty
Harmony Education Center
www.nsrfharmony.org

Affinity Mapping

This revision and description by Ross Peterson-Veatch, Instructional Consulting, Indiana University Kelley School of Business, 2006.

Description

This activity works best when begun with an open-ended analytic question that asks for defining elements of something, or that has many answers and thereby provides many points of entry for deepening a conversation.

Ex. *What is the purpose of discussion? Or, perhaps: What do you need to be able to contribute to discussions?*

Preparation

Hang pieces of chart paper on a wall in the room so that small groups can gather around the paper. Hand out to every participant a "block" of post-it notes (perhaps 5-10 maximum).

Step 1

Ask the question and request that participants write one idea in response per post-it note. Instruct them to work silently on their own.

Step 2

Split into groups (of 4-8). In *silence,* put all postit notes on the chart paper.

Step 3

Reminding participants to remain silent, have them organize ideas by "natural" categories. Directions might sound like this:

"Which ideas go together? As long as you do not talk, feel free to move any post-it note to any place. Move yours, and those of others, and feel free to do this. Do not be offended if someone moves yours to a place that you think it does not belong, just move it to where you think it does belong — but do this all in silence."

Step 4

Once groups have settled on categories, have them place post-it notes on chart paper in neat columns. At this point, ask them to converse about the categories and come up with a name for each one.

Step 5

Have the groups pick a "spokesperson" to report their ideas to the larger group.
Gather that data, and have an open discussion using questions such as the following to help participants make connections between each groups's responses and categories:

1. What themes emerged? Were there any surprises?
1. What dimensions are missing from our "maps"? Again, any surprises?
2. How did this expand your knowledge or your notion of what the question at the beginning asked you to consider?

Question Creation Chart

(Q Chart)

	Is	Did	Can	Would	Will	Might
Who						
What						
Where						
When						
How						
Why						

Create questions by using one word from the left had column and one word from the top row.
The further down and to the right you go, the more complex and higher level the question.

How to Create a Padlet

Padlet is an online discussion tool in which students can post their ideas on a certain subject and view other students' posts.

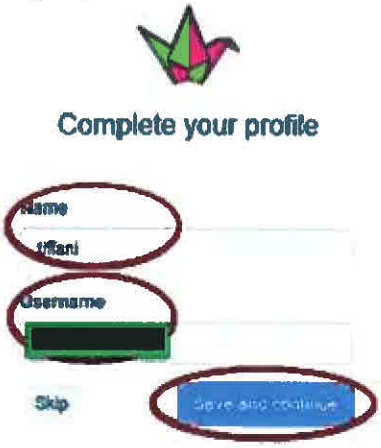
1. Access Padlet at the following web address: http://padlet.com.

2. Click "sign up" in the top right corner.

3. Enter your email and create a password. Click "sign up".

NOTE: You also have the option to sign in using Google or Facebook. If you prefer to do so, click the corresponding button, allow permissions for it, and then skip to step 5.

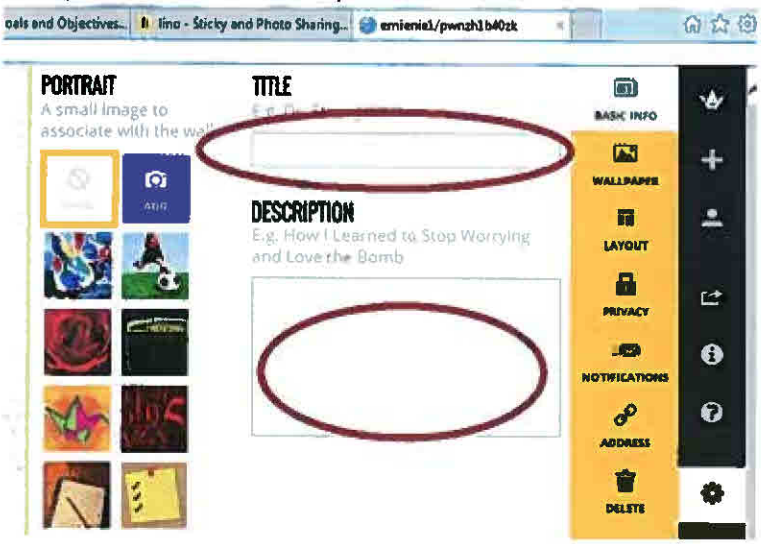
4. Type your name and create a username. Click "save and continue".



5. Click on "Create New Padlet" to create a new one.

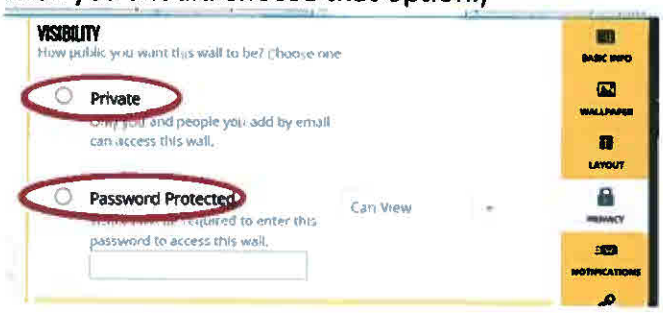
6. Click on modify wall.

7. Complete title and description fields.



8. Click on "privacy".

9. Make sure that "Private" and "Password Protected" are **not** clicked. "Private" will not allow anyone except you see your Padlet (including your students), and "Password Protected" will require you to create a password and then give that password to your students. (Of course, if you do want to create a password and give it to your students, then you should choose that option.)

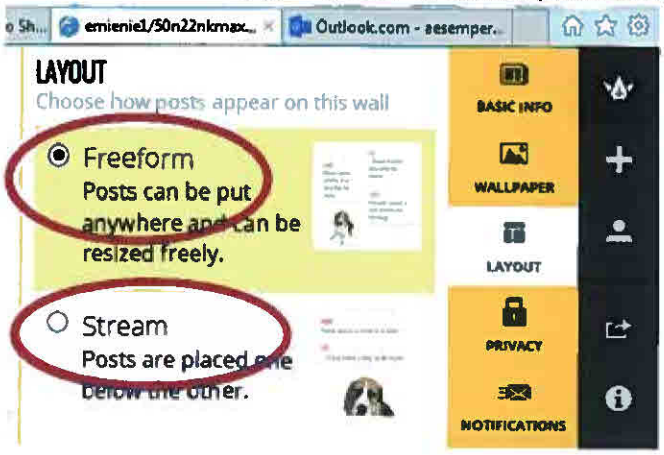


Choose from the other two options: "Hidden Link" — the wall will have a public link, but the link will be hidden from Google and public areas of Padlet. This means that you can give your students the link to find it, but no one will be able to find it without that link. "Totally Public" is where the wall will be public. It can show up in Google searches and can be featured by Padlet on the homepage.

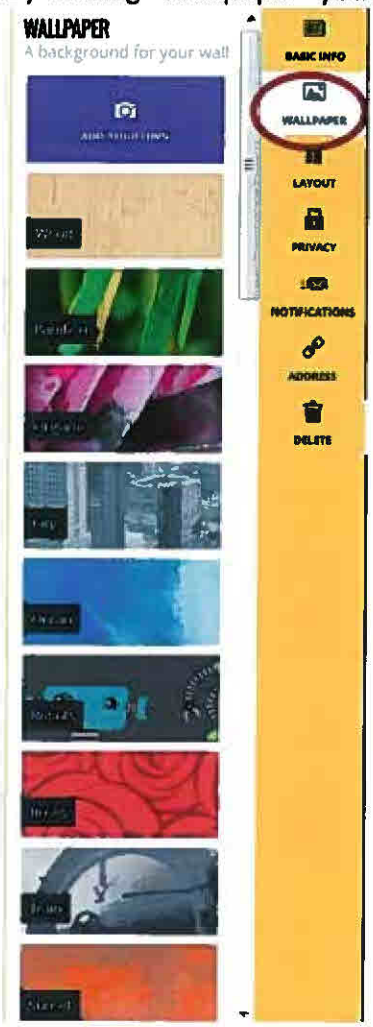
Add People by Email allows you to add co-authors to the Padlet. More Privacy Controls offer you the opportunity to moderate posts, if you wish to do that.

10. Click on "Layout."

Choose between the two options. "Freeform" is where posts can be put anywhere and can be resized freely. "Stream" is where posts are placed one below the other.

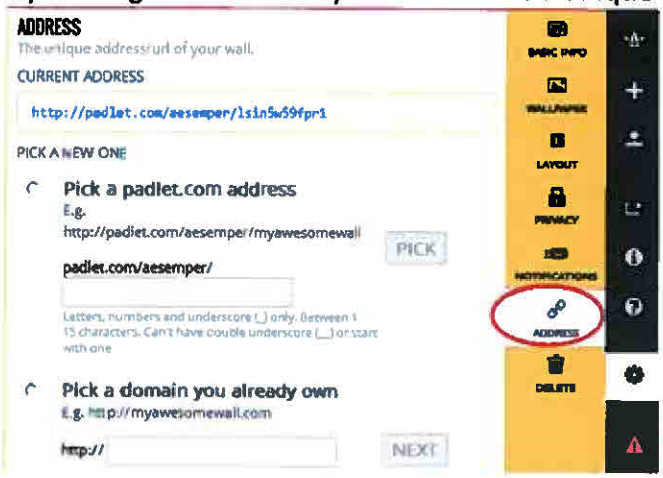


11. By clicking "Wallpaper" you can select a background for your wall or add your own.



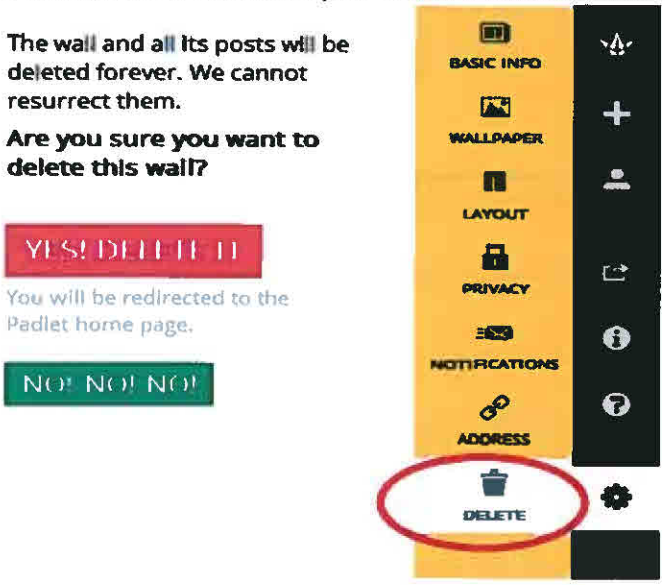
12. By clicking "Notifications" you can choose to be notified by email when someone posts on your wall.

13. By clicking on "Address" you can choose a unique web address/URL for your wall.



You can keep the current address by clicking "Pick a padlet.com address" or you can pick a new address by clicking "Pick a domain you already own." An example of picking your own domain name might be if KSU wanted to make a Padlet and connect it to their domain, they would put http://kennesaw.edu/ in the domain name, and then click "Next" to move on to choose a URL. The suggested option is to use a padlet.com address.

14. By clicking on "Delete" the wall and all its posts will be deleted forever. They cannot be resurrected. Be sure that you want to delete the wall and all its posts!



Now that you have created a Padlet, you will want to share it with students on D2L. The next pages show you how to do that.

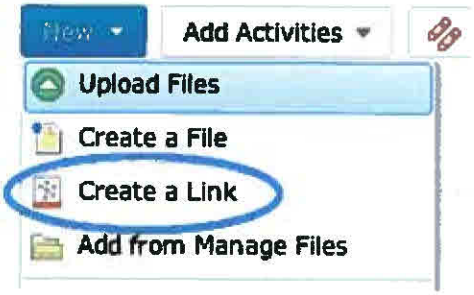
Putting Padlet in D2L

1. After you have already made a Padlet, you have two options to put your Padlet on D2L. To start, open another browser tab and go to D2L and go into the course you want your Padlet in.

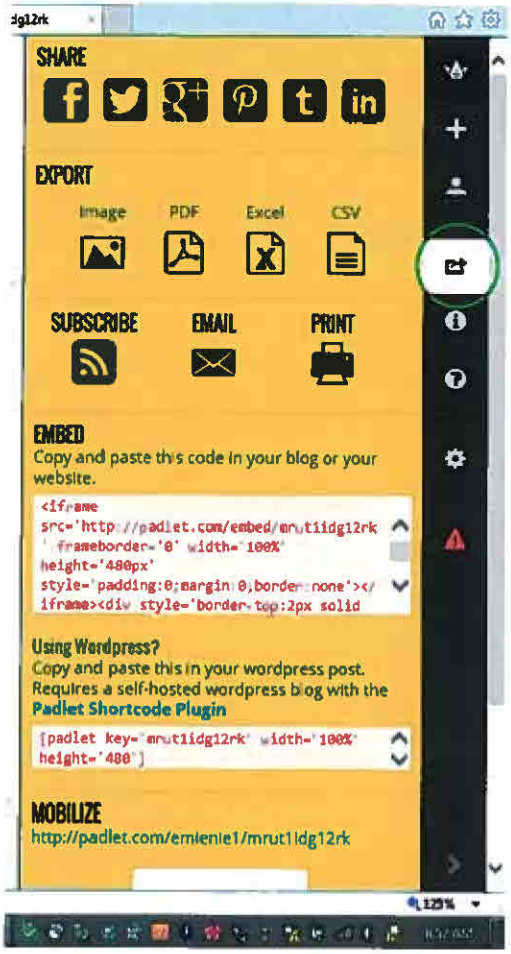
2. One way to put Padlet in your course is to simply link to it.
   a. In your course, click "Content" in the left corner under the Kennesaw logo.

   b. Click on the module you want the Padlet link to go into under "Table of Contents," then click "New."

   c. Click "Create a Link."



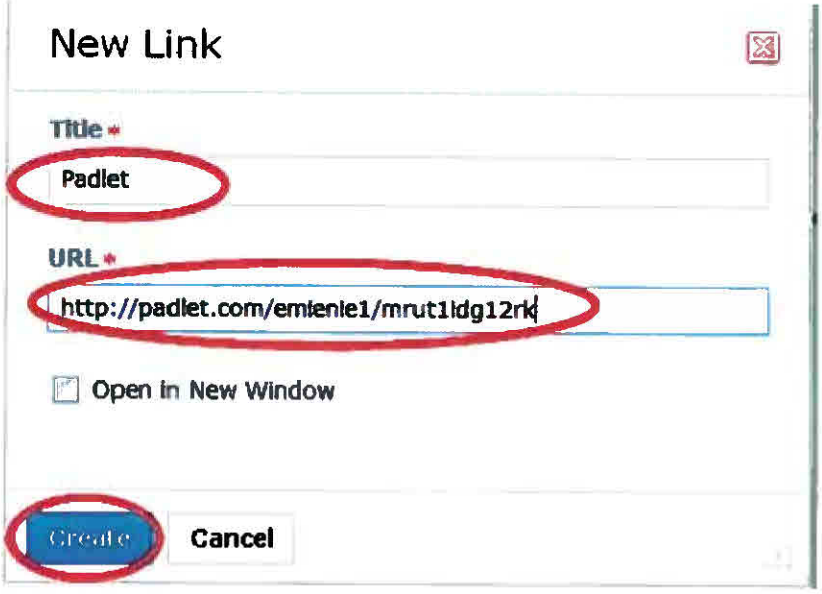
d. Switch over to the browser tab with the Padlet on it. Click "Share/Export."



e. Highlight and copy the URL under "Mobilize."

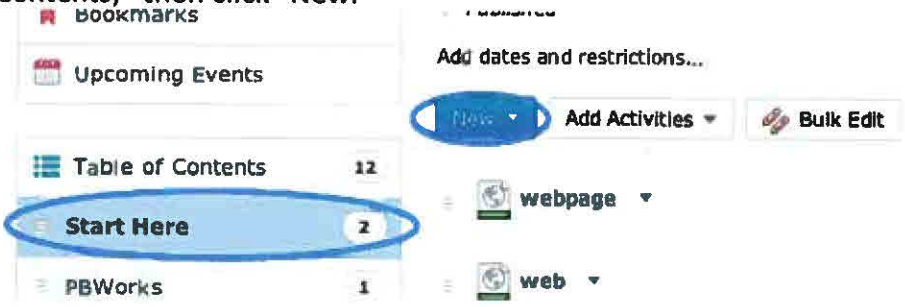
f. Switch back over to the D2L tab, and erase the "http://" under "URL," then paste in that box.

g. Give your link a title (what your students will see when they click the link), then click "Create."



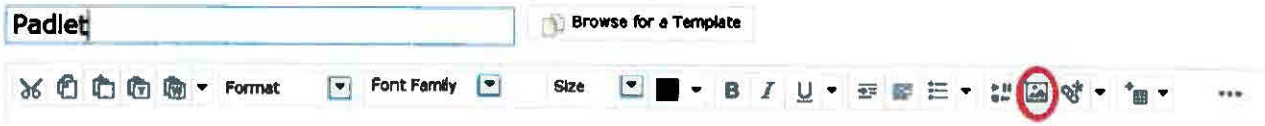
3. Another way to put Padlet into D2L is to embed it into a webpage.
   a. Go into D2L your D2L course and click "Content."

   b. Click on the module you want the Padlet link to go into under "Table of Contents," then click "New."

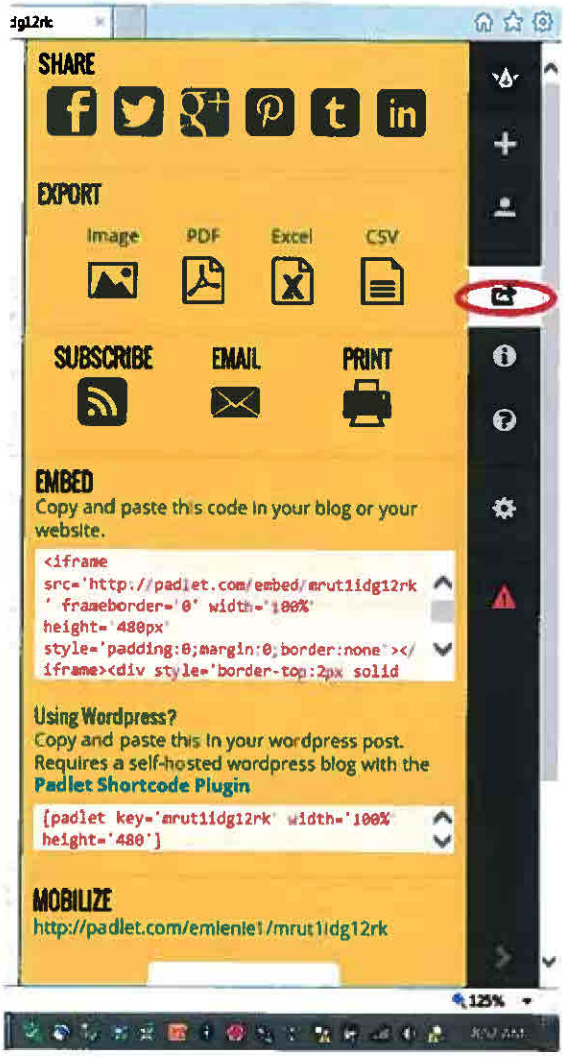


c. Click "Create a File."

d. Give your file a title in the space provided, then click "Insert Stuff."

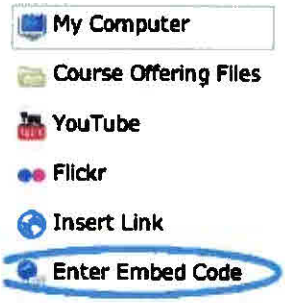


e. Switch back over to the browser tab with the Padlet on it. Click "Share/Export."

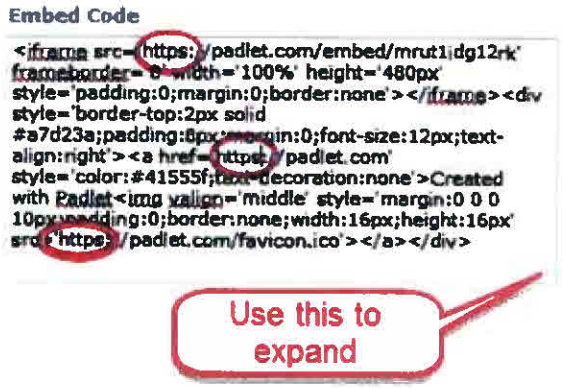


f. This time highlight and copy the code under "Embed."

g. Switch back over to the D2L tab, and click "Enter Embed Code." →



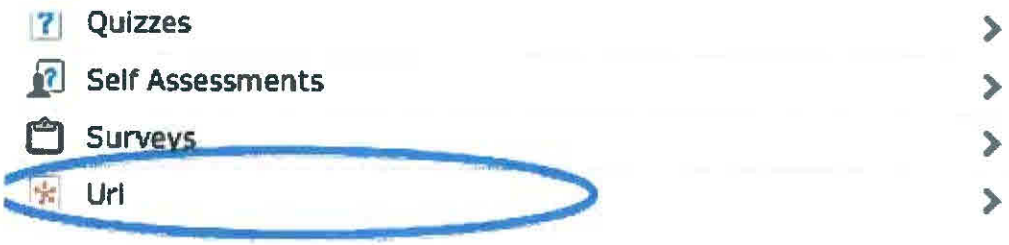
Paste the code in the box, then pull the bottom right corner of the box down to expand so you can see the whole code. Look through the code, and in every spot you see "http://", you have to add an "s" so that it says "https://".



h. Click "Next," then click "Always allow this page" and "Allow." Then click "Insert."

i. It is always a good idea to also include a link to embedded items under the item, in case the students' browsers do not allow them to view the embedded item. Do this by clicking next to the yellow box, hitting "Enter" or "Return" on your keyboard once or twice, and then clicking "Insert Quicklink."

At the bottom of the list, click "URL."



Highlight and erase the "http://" and paste the URL for the Padlet there. Then give it a title, for example "If you cannot see the Padlet above, click here." Click "Insert."

j. Click "Publish."

And you are finished!

Instructions created by: Eddie Mienie, May 2014

padlet.com/karpeuk/thearledtechpadlet

Educational Ways to Use Padlet

Thinking Maps

Use a Padlet wall for students to create various thinking maps digitally. They can arrange their post-it notes in a flow map, tree map, or even circle map format. You can upload a custom background (under options -> background) to help them with layout in the beginning.

Embed Videos or Websites

Set up a wall and add a note with a URL to a YouTube video or website with an article or video you want students to read/watch. Resize it a little to make the video bigger. Have space next to the note for students to respond to a specific prompt or question about what they watched or read.

Flow Maps

Set up a Padlet wall in either "Stream" or "Grid" format (under options -> Layout) and the post-it notes automatically go in order, which could be useful for doing a flow map.

Collaborate With Colleagues

Use a shared Padlet wall space to collaborate with colleagues on an upcoming project. With the ability to link to URLs or attach files & photos, you can curate and collect resources in one place so that everyone has access to them as you plan.

In Wellness

Ask students to post to the wall one way they met or exceeded their own personal best this week.

Set up Stations

Set up a computer station of 2-3 computers (either classroom computers, out in your pod, or laptops you've checked out) and have your Padlet wall up on the screen ahead of time. Let students rotate through the station to get an opportunity to add their post-it to the wall. This would work great in Socials classes, too!

Classroom Communication

Set up a Padlet wall in a stream layout. Use it to share communication like homework assignments and updates with parents and students, attaching files and linking to relevant URLs as needed. Allow students to ask questions and respond, or allow classmates to respond. Set the wall to have a password to keep it minimized to just your students/parents, and set email notifications on so you receive an email when people post to your wall to stay on top of possible questions.

Let Students Do the World

I.E. say you're learning about slope in math. Students are having trouble. Have students go out and find tutorials that explain how to find slope (have them do the work of curating the tutorial resources) and then link to them on post-it notes on a shared Padlet wall. Now your whole class has access to a wall full of tutorial resources they can reference to help them! Apply this to any other topic or subject area - let the kids do the work!

Music Example

Listen to a piece of music in class. Have students post to a Padlet wall to describe the imagery that came to their mind as they listened. Or have them critique the piece of music!

Exit Slips / Check in to Check Out

Set up a Padlet wall to serve as an exit slip. Have students or colleagues add a note to share a take-away from the lesson, what their next steps will be, the main idea of the day's lesson, one thing they learned today, etc.

K-W-L Chart

Set up a Padlet wall and have headings in place for K, W, and L for your topic. Have students add notes under the corresponding header to share what they KNOW, what they WANT to know, and what they LEARNED about the topic throughout the lesson or unit. Refer back often!

Word Sounds

Create a wall for the Long A sound. Ask students to post words to the wall that have a long A sound in them. You go back after the activity and arrange students in groups based on whether they "get it" or "don't get it" - now you know who needs help with the long A sound!

Content Curation

Set up a Padlet wall with notes to share various resources for an upcoming project for students. Or allow students to add notes for resources as they collect them on an upcoming group project. They can attach URLs to videos or websites or upload files and images to their notes to share resources between group members.

Close Reading Activity

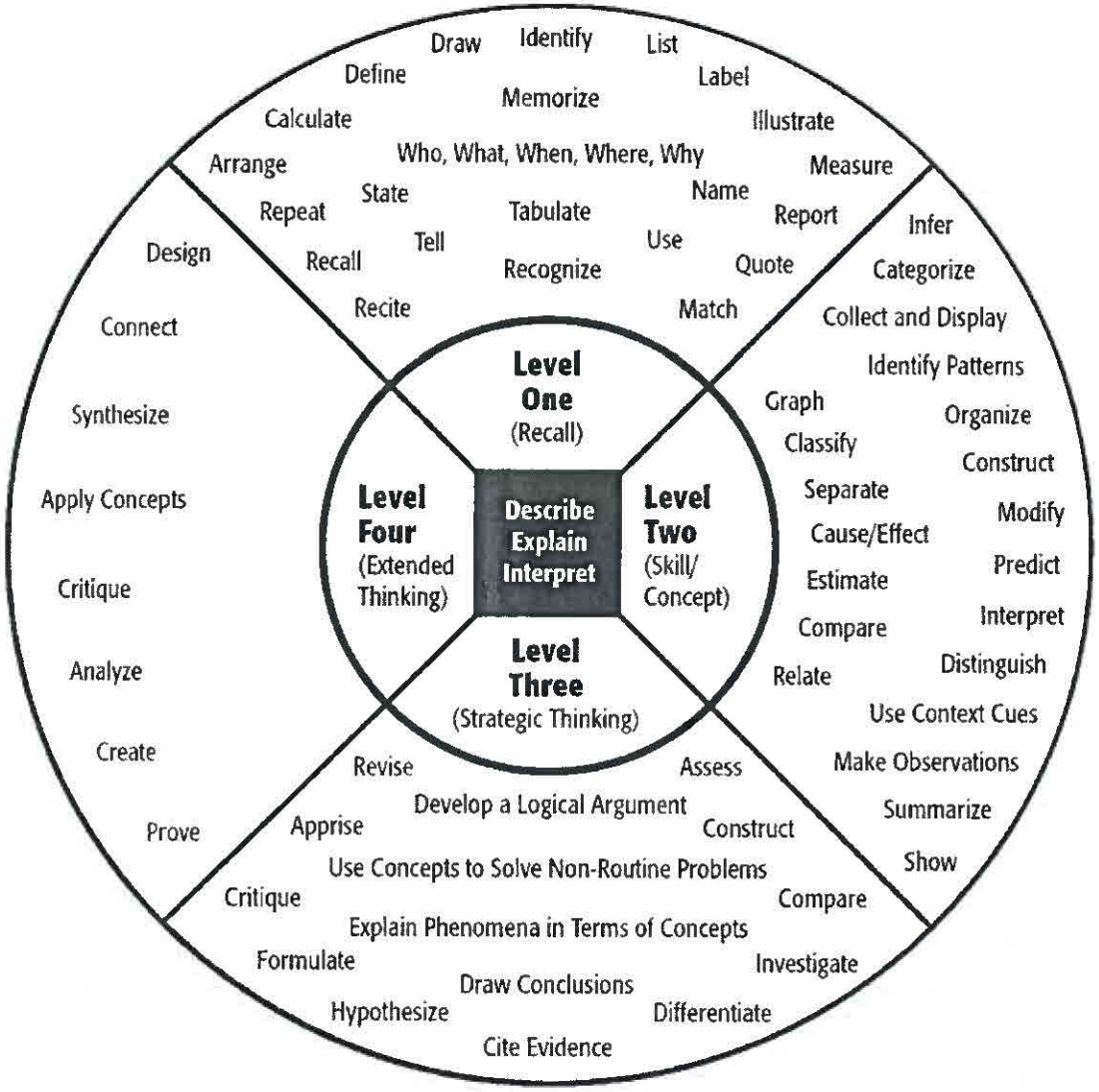
Have students read a piece of text and ask a guiding question; request that students post their responses on a Padlet wall, citing evidence from the text to support their answer.

Art Example

Have students take photos using their devices on a walking tour of the school of things they see that represent the various elements of art.

When finished, direct them to a shared Padlet wall space you've made (in the browser of their device!) and have them use the Upload feature on their post-it note to upload photos from their camera roll to turn in their assignment so you can see that they truly understand the various elements.

Depth of Knowledge (DOK) Levels



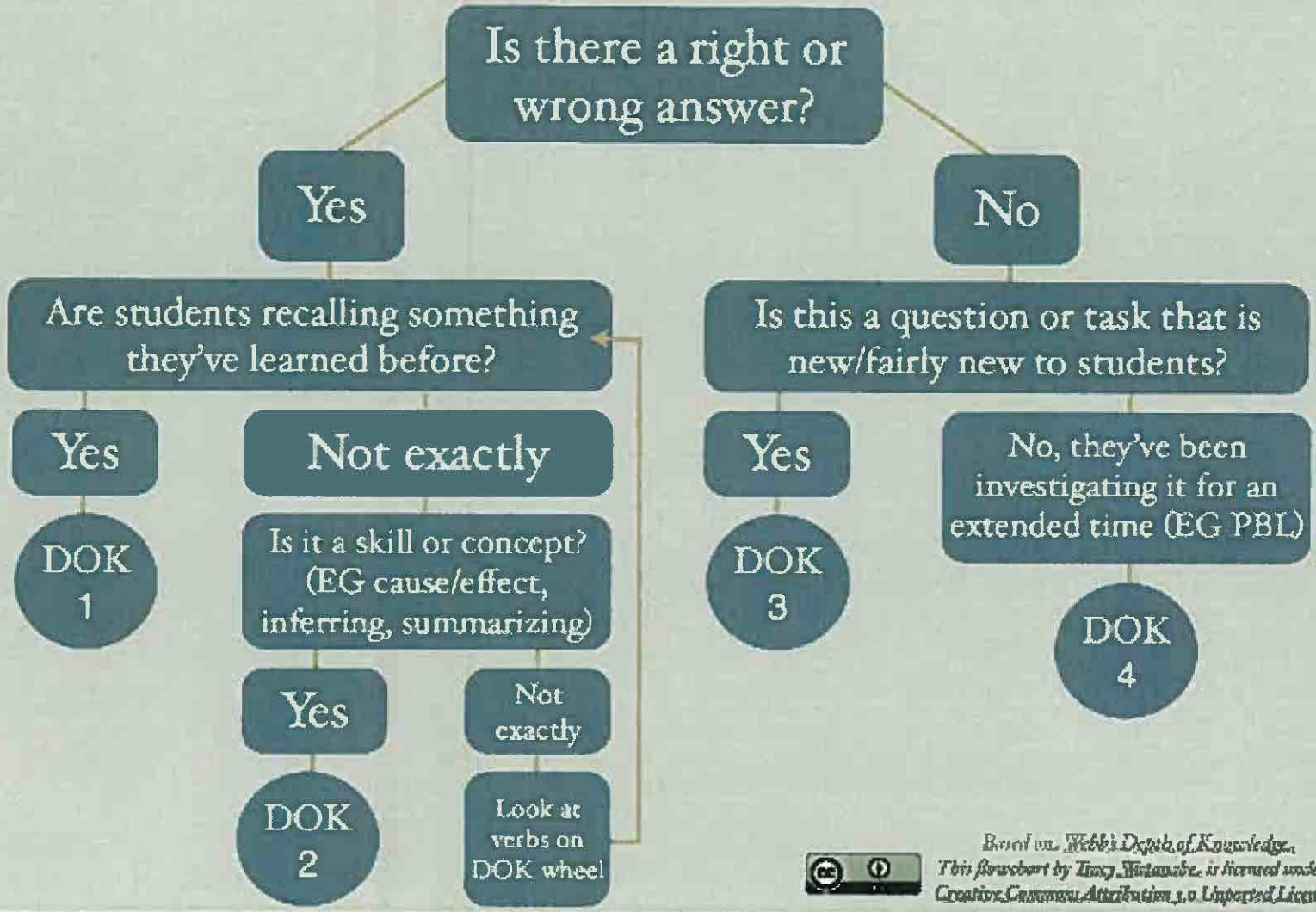
Level One Activities	Level Two Activities	Level Three Activities	Level Four Activities
Recall elements and details of story structure, such as sequence of events, character, plot and setting.	Identify and summarize the major events in a narrative.	Support ideas with details and examples.	Conduct a project that requires specifying a problem, designing and conducting an experiment, analyzing its data, and reporting results/ solutions.
Conduct basic mathematical calculations.	Use context cues to identify the meaning of unfamiliar words.	Use voice appropriate to the purpose and audience.	Apply mathematical model to illuminate a problem or situation.
Label locations on a map.	Solve routine multiple-step problems.	Identify research questions and design investigations for a scientific problem.	Analyze and synthesize information from multiple sources.
Represent in words or diagrams a scientific concept or relationship.	Describe the cause/effect of a particular event.	Develop a scientific model for a complex situation.	Describe and illustrate how common themes are found across texts from different cultures.
Perform routine procedures like measuring length or using punctuation marks correctly.	Identify patterns in events or behavior.	Determine the author's purpose and describe how it affects the interpretation of a reading selection.	Design a mathematical model to inform and solve a practical or abstract situation.
Describe the features of a place or people.	Formulate a routine problem given data and conditions.	Apply a concept in other contexts.	
	Organize, represent and interpret data.		

Webb, Norman L. and others. "Web Alignment Tool" 24 July 2005. Wisconsin Center of Educational Research. University of Wisconsin-Madison. 2 Feb. 2006. <http://www.wcer.wisc.edu/WAT/index.aspx>

Hess' Cognitive Rigor Matrix: Applies Webb's DOK to Bloom's Cognitive Process Dimensions

Depth + thinking	Level 1 Recall & Reproduction	Level 2 Basic Skills & Concepts	Level 3 Strategic Thinking & Reasoning	Level 4 Extended Thinking
Remember	- Recall, locate basic facts, details, events			
Understand	- Select appropriate words to use when intended meaning is clearly evident	- Specify, explain relationships - summarize - identify main ideas	- Explain, generalize, or connect ideas using supporting evidence (quote, example...)	- Explain how concepts or ideas specifically relate to other content domains or concepts
Apply	- Use language structure (pre/suffix) or word relationships (synonym/antonym) to determine meaning	- Use context to identify meaning of word - Obtain and interpret information using text features	- Use concepts to solve non-routine problems	- Devise an approach among many alternatives to research a novel problem
Analyze	- Identify whether information is contained in a graph, table, etc.	- Compare literary elements, terms, facts, events - analyze format, organization, & text structures	- Analyze or interpret author's craft (literary devices, viewpoint, or potential bias) to critique a text	- Analyze multiple sources or texts - Analyze complex/abstract themes
Evaluate			- Cite evidence and develop a logical argument for conjectures	- Evaluate relevancy, accuracy, & completeness of information
Create	- Brainstorm ideas about a topic	- Generate conjectures based on observations or prior knowledge	- Synthesize information within one source or text	- Synthesize information across multiple sources or texts

Depth of Knowledge (DOK) Flowchart for Questions



DOK Question Stems

DOK 1

- Can you recall_____?
- When did ____ happen?
- Who was ____?
- How can you recognize____?
- What is____?
- How can you find the meaning of____?
- Can you recall____?
- Can you select____?
- How would you write___?
- What might you include on a list about___?
- Who discovered___?
- What is the formula for___?
- Can you identify___?
- How would you describe___?

DOK 2

- Can you explain how ____ affected ____?
- How would you apply what you learned to develop ____?
- How would you compare ____? Contrast_____?
- How would you classify____?
- How are____alike? Different?
- How would you classify the type of____?
- What can you say about____?
- How would you summarize____?
- How would you summarize___?
- What steps are needed to edit___?
- When would you use an outline to ___?
- How would you estimate___?
- How could you organize___?
- What would you use to classify___?
- What do you notice about___?

DOK 3

- How is ____ related to ____?
- What conclusions can you draw _____?
- How would you adapt____to create a different____?
- How would you test____?
- Can you predict the outcome if____?
- What is the best answer? Why?
- What conclusion can be drawn from these three texts?
- What is your interpretation of this text? Support your rationale.
- How would you describe the sequence of____?
- What facts would you select to support____?
- Can you elaborate on the reason____?
- What would happen if___?
- Can you formulate a theory for___?
- How would you test___?
- Can you elaborate on the reason___?

DOK 4

- Write a thesis, drawing conclusions from multiple sources.
- Design and conduct an experiment. Gather information to develop alternative explanations for the results of an experiment.
- Write a research paper on a topic.
- Apply information from one text to another text to develop a persuasive argument.
- What information can you gather to support your idea about___?
- DOK 4 would most likely be the writing of a research paper or applying information from one text to another text to develop a persuasive argument.
- DOK 4 requires time for extended thinking.

From Depth of Knowledge – Descriptors, Examples and Question Stems for Increasing Depth of Knowledge in the Classroom Developed by Dr. Norman Webb and Flip Chart developed by Myra Collins

Applying Webb's Depth of Knowledge and NAEP Levels of Complexity in Mathematics

Karin Hess, National Center for Assessment

In order to define descriptors for cognitive demand to guide test item or assessment development, classification of items, and alignment to the states' Grade Level Expectations (GLEs), the Center for Assessment recommends drawing upon such work as Webb (2002), NAEP (2004) level of Complexities, and the implied cognitive demand in state GLEs for mathematics. These levels and descriptors can be used to guide item and overall test development, and establish the potential cognitive demand for assessment.

Descriptors of Levels for Mathematics (based on Webb, "Depth-of-Knowledge Levels for Four Content Areas," March 2002 and Webb, *Technical Issues in Large-Scale Assessment*, report published by CCSSO, December 2002
Below is a general definition for each Depth of Knowledge (DOK) Level. Table 1 (on the following page) contains mathematics descriptors for each level. Table 2 provides an example of a DOK ceiling level and other potential levels for assessment of a sample mathematics GLE.

Level 1 – Recall
This level involves the recall of information (fact, definition, term, or property), the use of a procedure, or applying an algorithm or formula. It also includes one-step word problems, and other specifications unique to content standards.

Level 2 –Skills and Concepts
Skills and Concepts involve more than one step, demonstrating conceptual understanding through models and explanations, comparing and classifying information, estimating, and interpreting data from a simple graph. A Level 2 response requires students to make some decisions, such as how to approach the problem or activity.

Level 3 – Strategic Thinking
Strategic Thinking involves reasoning, planning, and using evidence to solve a problem or algorithm. Students would be asked at Level 3 to make and test conjectures, interpret information from a complex graph, solve complex problems, explain concepts, use concepts to solve non-routine problems, and provide mathematical justifications *when more than one response or approach is possible.*

Level 4 – Extended Thinking
Extended Thinking requires complex reasoning, planning, and thinking generally over extended periods of time (but not time spent only on repetitive tasks). At level 4, students may be asked to relate concepts to other content areas or to real-world applications in new situations. In mathematics, Level 4 Depth of Knowledge is not recommended by Webb to be assessed on the state grade level assessments, but should be assessed locally.

Table 1: *Math Descriptors* – Applying Depth of Knowledge Levels for Mathematics (Webb, 2002) & NAEP 2002 Mathematics Levels of Complexity (M. Petit, Center for Assessment 2003, K. Hess, Center for Assessment, updated 2006)

Level 1 Recall	Level 2 Skills/Concepts	Level 3 Strategic Thinking	Level 4 Extended Thinking
a. Recall, observe, or recognize a fact, definition, term, or property b. Apply/compute a well-known algorithm (e.g., sum, quotient) c. Apply a formula d. Determine the area or perimeter of rectangles or triangles given a drawing and labels e. Identify a plane or three dimensional figure f. Measure g. Perform a specified or routine procedure (e.g., apply rules for rounding) h. Evaluate an expression i. Solve a one-step word problem j. Retrieve information from a table or graph k. Recall, identify, or make conversions between and among representations or numbers (fractions, decimals, and percents), or within and between customary and metric measures l. Locate numbers on a number line, or points on a coordinate grid m. Solve linear equations n. Represent math relationships in words, pictures, or symbols o. Read, write, and compare decimals in scientific notation	a. Classify plane and three dimensional figures b. Interpret information from a simple graph c. Use models to represent mathematical concepts d. Solve a **routine** problem requiring multiple steps, or the application of multiple concepts e. Compare and/or contrast figures or statements f. Construct 2-dimensional patterns for 3-dimensional models, such as cylinders and cones g. Provide justifications for steps in a solution process h. Extend a pattern i. Retrieve information from a table, graph, or figure and use it solve a problem requiring multiple steps j. Translate between tables, graphs, words and symbolic notation k. Make direct translations between problem situations and symbolic notation l. Select a procedure according to criteria and perform it m. Specify and explain relationships between facts, terms, properties, or operations n. Compare, classify, organize, estimate, or order data	a) Interpret information from a complex graph b) Explain thinking when more than one response is possible c) Make and/or justify conjectures d) Use evidence to develop logical arguments for a concept e) Use concepts to solve non-routine problems f) Perform procedure with multiple steps and multiple decision points g) Generalize a pattern h) Describe, compare, and contrast solution methods i) Formulate a mathematical model for a complex situation j) Provide mathematical justifications k) Solve a multiple- step problem and provide support with a mathematical explanation that justifies the answer l) Solve 2-step linear equations/inequalities in one variable over the rational numbers, interpret solution(s) in the original context, and verify reasonableness of results m) Translate between a problem situation and symbolic notation that is not a direct translation n) Formulate an original problem, given a situation o) Analyze the similarities and differences between procedures p) Draw conclusion from observations or data, citing evidence	a) Relate mathematical concepts to other content areas b) Relate mathematical concepts to real-world applications in new situations c) Apply a mathematical model to illuminate a problem, situation d) Conduct a project that specifies a problem, identifies solution paths, solves the problem, and reports results e) Design a mathematical model to inform and solve a practical or abstract situation f) Develop generalizations of the results obtained and the strategies used and apply them to new problem situations g) Apply one approach among many to solve problems h) Apply understanding in a novel way, providing an argument/justification for the application ***NOTE:*** *Level 4 involves such things as complex restructuring of data or establishing and evaluating criteria to solve problems.*

Applying Webb's Depth-of-Knowledge (DOK) Levels in Reading

Karin K. Hess

According to Norman L. Webb ("Depth-of-Knowledge Levels for Four Content Areas," March 28, 2002), interpreting and assigning depth-of-knowledge levels to both objectives within standards and assessment items is an essential requirement of alignment analysis. Four levels of Depth of Knowledge are used for this analysis.

A general definition for each of the four (Webb) Depth-of-Knowledge levels is followed by Table 1, which provides further specification and examples for each of the DOK levels. Webb recommends that large-scale, on-demand assessments in reading should only assess Depth-of-Knowledge Levels 1, 2, and 3. Depth-of-Knowledge at Level 4 in reading should be reserved for local assessment only.

Table 2 provides examples of DOK "ceilings" (the highest level of cognitive demand for large-scale assessment) using one state's reading grade level expectations.

Descriptors of DOK Levels for Reading (based on Webb and Wixson, March 2002 and Webb, *Technical Issues in Large-Scale Assessment*, report published by CCSSO, December 2002)

Level 1 requires students to use simple skills or abilities to recall or locate facts from the text. The focus is on basic initial comprehension, not on analysis or interpretation. Items require only a shallow/literal understanding of text presented and often consist of verbatim recall from text, or simple understanding of a single word or phrase.

Level 2 requires both initial comprehension and subsequent processing of text or portions of text. Important concepts are covered, but not in a complex way. GLEs/items at this level may include words such as paraphrase, summarize, interpret, infer, classify, organize, collect, display, compare, and determine whether fact or opinion. Literal main ideas are stressed. Items may require students to apply skills and concepts that are covered in Level 1.

Level 3 requires deep knowledge. Students are encouraged to go beyond the text and are asked to explain, generalize, or connect ideas. Students must be able to support their thinking, citing references from the text or other sources. Items may involve abstract theme identification, inferences between or across passages, students' application of prior knowledge, or text support for an analytical judgment made about a text.

Level 4 requires complex reasoning, planning, developing, and thinking most likely over an extended period of time, such as comparing multiple works by the same author or from the same time period. The extended time period is not a distinguishing factor if the required work is only repetitive and doesn't require applying a significant conceptual understanding and higher-order thinking. Level 4 assessments should be done only at the local level.

Table 1: Sample Depth-of-Knowledge Level Descriptors for Reading (Based on Webb and Wixson, K. Hess, Center for Assessment/NCIEA, 2004)

Level 1 Recall of Information	Level 2 Basic Reasoning	Level 3 Complex Reasoning	Level 4 Extended Reasoning
a. Read words orally in isolation b. Read words orally in connected text c. Read multi-syllabic words d. Locate or recall facts or details explicitly presented in text e. Identify or describe characters, setting, sequence of events f. Use language structure (pre/suffix) or word relationships (synonym/antonym) to determine meaning of words g. Select appropriate words to use in context (e.g., content-specific words, shades of meaning) when intended meaning is clearly evident	a. Use context cues or resources to identify the meaning of unfamiliar words b. Predict a logical outcome based on information in a reading selection c. Make basic inferences or draw basic conclusions about information presented in text (e.g., According to this report, what caused ___?) d. Recognizing appropriate generalizations about text (e.g., possible titles, main ideas) e. Identify and summarize the major events, problem, solution, conflicts in a literary text f. Determine whether a text is fact or fiction g. Distinguish between fact and opinion h. Describe the characteristics or features of various types of text i. Obtain information using text features of informational text (e.g., Table of Contents, sidebar, chart) j. Organize information presented in informational text using mapping, charting, or summarizing k. Locate information to answer questions related to explicit or implicit central ideas in informational texts l. Identify use of literary devices (e.g., imagery, idioms, exaggeration, alliteration, etc.)	a. Explain, generalize, or connect ideas, using supporting evidence from the text or from other sources b. Draw inferences about author's purpose, author's message or theme (explicit or implied) c. Make and support inferences about implied causes and effects d. Describe how word choice, point of view, or bias affects the interpretation of a reading selection e. Summarize or compare information within and across text passages f. Analyze interrelationships among elements of the text (plot, subplots, characters, setting) g. Analyze or interpret use of author's craft (literary devices) to analyze or critique a literary text	a. Compare or analyze multiple works by the same author, including author's craft b. Compare or analyze multiple works from the same time period or from the same genre c. Gather, analyze, organize, and interpret information from multiple (print and non print) sources for the purpose of drafting a reasoned report d. Evaluate the relevancy and accuracy of information from multiple (print and non print) sources (e.g., verifying factual information or assertions with other sources; researching the source of information)

Depth-of-Knowledge as a "Ceiling" NOT as a "Target"

An important aspect of the NECAP assessment design is to use the highest Depth-of-Knowledge (DOK) demand implicit in a GLE as the "ceiling" for assessment, not the "target." Table 2 provides three examples of Vermont Reading GLEs with different "ceilings," that is, the highest DOK Level at which a GLE should be assessed. When considering the highest DOK Level as the ceiling not the target, the GLE has the potential to be assessed at Depth-of-Knowledge Levels at the ceiling, and up to the ceiling, depending upon the demand of the GLE. Table 2 also indicates the other DOK levels at which the GLE could be assessed.

Table 2 Examples of GLEs and Depth of Knowledge for Assessment Purposes

***One state's* Reading GLEs**	**GLE Ceiling**	**Potential DOK Levels for Assessment**
GLE-R3: Applies word identification/ decoding strategies by ... R3: 3b Identifying multi-syllabic words (e.g., "pretending," "discussion"), by using knowledge of sounds, syllable types, or word patterns (including prefixes, suffixes, or variant spellings for consonants or vowels, e.g., bought)	1	1 (Knowledge of sounds, syllable types, word patterns)
GLE-R5: Students identify the meaning of unfamiliar words by... **R5: 5a** Using strategies to unlock meaning (e.g., knowledge of word structure, including prefixes/suffixes and base words; or context clues; or other resources, such as dictionaries or glossaries; or prior knowledge) (Assumes increasing and grade-appropriate text complexity)	2	1 (Knowledge of word structure) 2 (Use of context clues and resources, such as dictionaries to unlock meaning)
GLE-R13: Analyze and interpret elements of literary texts, citing evidence where appropriate by... R5: 13a Making logical predictions R5: 13b Describing characters' physical characteristics, personality traits, or interactions; or providing examples of thoughts, words, or actions that reveal characters' personality traits or their changes over time R5: 13c Making inferences about problem, conflict, solution, or the relationship among elements (plot, character, setting) within text (e.g., how setting affects a character or plot development) R5: 13d Identifying author's message or theme (implied or stated, as in a fable) (Assumes increasing and grade-appropriate text complexity)	3	1 (Describing characters' physical characteristics, thoughts, words, or actions) 2 (Predicting a Logical outcome; identifying author's message or theme) 3 (Making inferences about problem, solution, or conflicts; using supporting evidence from text)

Why is this distinction between "ceiling" and "target" important?

If assessed only at the "target," all GLEs with a Level 3 as their highest demand would only be assessed at Level 3. This would potentially have two negative impacts on the assessment: 1) The assessment as a whole could be too difficult; and 2) important information about student learning along the achievement continuum would be lost.

Applying Webb's Depth-of-Knowledge (DOK) Levels in Science

Karin K. Hess

According to Norman L. Webb ("Depth-of-Knowledge Levels for Four Content Areas," March 28, 2002), interpreting and assigning depth-of-knowledge levels to both objectives within standards and assessment items is an essential requirement of alignment analysis. Four levels of Depth of Knowledge are used for this analysis.

A general definition for each of the four (Webb) Depth-of-Knowledge levels is followed by Table 1, which provides further specification and examples for each of the DOK levels in science. Generally speaking, large-scale, on-demand assessments should only assess Depth-of-Knowledge Levels 1, 2, and 3. Depth-of-Knowledge at Level 4 should be reserved for local assessment and is included here primarily for illustrative purposes.

Descriptors of DOK Levels for Science (based on Webb, March 2002 and TIMSS Science Assessment framework, 2003)

Level 1 Recall and Reproduction requires recall of information, such as a fact, definition, term, or a simple procedure, as well as performing a **simple** science process or procedure. Level 1 only requires students to demonstrate a rote response, use a well-known formula, follow a set procedure (like a recipe), or perform a clearly defined series of steps. A "simple" procedure is well-defined and typically involves only **one-step**. Verbs such as "identify," "recall," "recognize," "use," "calculate," and "measure" generally represent cognitive work at the recall and reproduction level. Simple word problems that can be directly translated into and solved by a formula are considered Level 1. Verbs such as "describe" and "explain" could be classified at different DOK levels, depending on the complexity of what is to be described and explained.

A student answering a Level 1 item either knows the answer or does not: that is, the answer does not need to be "figured out" or "solved." In other words, if the knowledge necessary to answer an item automatically provides the answer to the item, then the item is at Level 1. If the knowledge necessary to answer the item does not automatically provide the answer, the item is at least at Level 2.

Level 2 Skills and Concepts includes the engagement of some mental processing beyond recalling or reproducing a response. The content knowledge or process involved is **more complex** than in level 1. Items require students to make some decisions as to how to approach the question or problem. Keywords that generally distinguish a Level 2 item include "classify," "organize," "estimate," "make observations," "collect and display data," and "compare data." These actions imply **more than one step**. For example, to compare data requires first identifying characteristics of the objects or phenomenon and then grouping or ordering the objects. Level 2 activities include making observations and collecting data; classifying, organizing, and comparing data; and organizing and displaying data in tables, graphs, and charts.

Some action verbs, such as "explain," "describe," or "interpret," could be classified at different DOK levels, depending on the complexity of the action. For example, interpreting information from a simple graph, requiring reading information from the graph, is a Level 2. An item that requires interpretation from a complex graph, such as making decisions regarding features of the graph that need to be considered and how information from the graph can be aggregated, is at Level 3.

Level 3 Strategic Thinking requires deep knowledge using reasoning, planning, using evidence, and a higher level of thinking than the previous two levels. The cognitive demands at Level 3 are **complex and abstract**. The complexity does not result only from the fact that there could be multiple answers, a possibility for both Levels 1 and 2, but because the multi-step task requires **more demanding reasoning**. In most instances, requiring students to explain their thinking is at Level 3; requiring a very simple explanation or a word or two should be at Level 2. An activity that has more than one possible answer and requires students to justify the response they give would most likely be a Level 3. Experimental designs in Level 3 typically involve more than one dependent variable. Other Level 3 activities include drawing conclusions from observations; citing evidence and developing a logical argument for concepts; explaining phenomena in terms of concepts; and using concepts to solve non-routine problems.

Level 4 Extended Thinking requires **high cognitive demand** and is **very complex**. Students are required to make several connections—relate ideas *within* the content area or *among* content areas—and have to select or devise one approach among many alternatives on how the situation can be solved. Many on-demand assessment instruments will not include any assessment activities that could be classified as Level 4. However, standards, goals, and objectives can be stated in such a way as to expect students to perform extended thinking. "Develop generalizations of the results obtained and the strategies used and apply them to new problem situations," is an example of a Grade 8 objective that is a Level 4. Many, but not all, performance assessments and open-ended assessment activities requiring significant thought will be Level 4.

Level 4 requires complex reasoning, experimental design and planning, and **probably will require an extended period of time** either for the science investigation required by an objective, or for carrying out the multiple steps of an assessment item. However, the extended time period is not a distinguishing factor if the required work is only repetitive and does not require applying significant conceptual understanding and higher-order thinking. For example, if a student has to take the water temperature from a river each day for a month and then construct a graph, this would be classified as a Level 2 activity. However, if the student conducts a river study that requires taking into consideration a number of variables, this would be a Level 4.

Depth-of-Knowledge as a "Ceiling" NOT as a "Target"
An important consideration of large-scale assessment design is to use the highest Depth-of-Knowledge (DOK) demand implicit in an assessment limit as the "ceiling" for assessment, not the "target." Table 2 provides three examples of *possible* assessment limits with different "ceilings," that is, the highest DOK Level at which it should be assessed. When considering the highest DOK Level as the ceiling not the target, it has the potential to be assessed at Depth-of-Knowledge Levels at the ceiling, and up to the ceiling, depending upon the cognitive demand of the assessment limit. Table 2 also indicates the other DOK levels at which the assessment limit could be assessed.

Table 2 Examples of content indicators and DOK for Assessment Purposes

Sample Science Assessment "Limit"	Ceiling	Potential DOK Levels for Assessment
Example A: Perform a simple science process or a set procedure to gather data	**1**	**1** (Measure temperature of water)
Example B: organize and represent data collected over a period time, making comparisons and interpretations	**2**	**1** (Measure temperature of water at different times or places) **2** (Construct a graph to organize, display, and compare data)
Example C: Answer research questions for a scientific problem related to the environment. Interpret and use data collected to draw and support conclusions.	**3**	**1** (Measure temperature of water at different times or places) **2** (Construct a graph to organize, display, and compare data) **3** (Conduct an investigation to explain the effect of varying temperatures of the river in different locations)

Why is this distinction between "ceiling" and "target" important?
If assessed only as the "target," level, all assessment limits with a Level 2 or Level 3 as their highest demand would only be assessed at those highest levels. This would potentially have two negative impacts on the assessment: 1) The assessment as a whole could be too difficult; and 2) important information about student learning along the achievement continuum would be lost. Multiple items covering a range of DOK levels can provide useful instructional information for classroom teachers.

Applying Webb's Depth of Knowledge Levels for Social Studies

(Based on Webb and Wixson, K. Hess, Center for Assessment/NCIEA, 2004)

Webb's DOK Levels			
Recall and Reproduction (DOK 1)	**Skills and Concepts/ Basic Reasoning (DOK 2)**	**Strategic Thinking/ Complex Reasoning (DOK 3)**	**Extended Thinking/ Reasoning (DOK 4)**
• Identify who, when, what where, and why • Recall facts, terms, concepts, trends, generalizations and theories •Use a variety of tools • Recognize or identify specific information contained in graphics. • Identify specific information in maps, charts, tables, graphs or drawings • Define • Identify cause and effect • Describe (recall, recite or reproduce information) • Identify purposes	• Describe or explain how or why • Give an example • Describe and explain issues and problems, purposes, patterns, sources, reasons, cause and effect, multiple causation, significance or impact, relationships, points of view or processes • Compare/contrast people, places, events, purposes, and concepts • Classify, sort items into meaningful categories • Convert information from one form to another	• Use concepts to solve problems • Use evidence to justify • Propose and evaluate solutions to problems • Recognize and explain misconceptions • Cite evidence and develop a logical argument for concepts • Reason and draw conclusions • Discriminate among plausible answers • Analyze similarities and differences in issues and problems • Apply concepts to new situations • Make connections across time and place to explain a concept or big idea • Recognize and explain patterns • Make and support decisions • Evaluate effectiveness and impact	• Connect and relate ideas and concepts within the content area or among content areas • Examine and explain alternative perspectives across a variety of sources • Describe and illustrate how common themes and concepts are found across time and place • Make predictions with evidence as support • Develop a logical argument • Plan and develop solutions to problems • Analyze and synthesize information from multiple sources • Complex reasoning with planning, investigating or developing that will most likely require an extended period of time-must require applying significant conceptual understanding and higher-order thinking • Apply and adapt information to real-world situations • Participation in simulations and activities requiring higher-level thinking (e.g., Mock Trial, Mock Congress, Project Citizen)

Applying Webb's Depth of Knowledge Levels for Writing

(Based on Webb and Wixson, K. Hess, Center for Assessment/NCIEA, 2004)

Webb's DOK Levels			
Recall and Reproduction (DOK 1)	**Skills and Concepts/ Basic Reasoning (DOK 2)**	**Strategic Thinking/ Complex Reasoning (DOK 3)**	**Extended Thinking/ Reasoning (DOK 4)**
• Listing/generating ideas or words prior to developing written composition (brainstorming, webbing) • Selecting or recalling appropriate vocabulary (words, phrases, idioms) to achieve intended meaning in writing • Writing simple sentences • Using punctuation marks and capitalization correctly in writing and editing • Using Standard English conventions in writing and editing to correct errors • Identifying misspelled words in a written passage • Applying conventional spelling patterns/rules to new situations in writing • Using resources (dictionary, thesaurus) to correct spelling in written passages • Using resources to identify Standard English grammatical structures for correction • Using resources to apply basic formats for documentation	• Note-taking or outlining as a means of organizing ideas for writing • Developing text which may be limited to one paragraph • Using simple organizational strategies to structure written work (basic paragraph form: indenting, main idea, supporting details; simple transitions) • Constructing a variety of sentence types (simple and compound, sentences with embedded phrases) • Writing summaries that contain the main idea of a reading selection and pertinent details • Demonstrating basic understanding and appropriate use of such reference materials as a dictionary, thesaurus, or web site • Editing final drafts of compositions for mechanics and conventions, including grammar, punctuation, and capitalization	• Developing compositions that include multiple paragraphs • Using complex or varied sentence structures in written compositions • Demonstrating some synthesis and analysis in writing (making inferences; determining relationships; generalizing, or connecting ideas) • Showing awareness of audience and purpose through focus, organization, voice/tone • Using appropriate organizational text structures (description, chronology; proposition and support; compare and contrast; cause and effect) • Editing and revising to improve the quality of the composition • Supporting ideas with details, examples, quotations, text references, and/or citations • Editing final drafts to produce a logical progression of ideas • Summarizing information from multiple sources to address a specific topic	• Developing multi-paragraph compositions that demonstrate synthesis and analysis of complex ideas or themes • Analyzing author's craft (style, bias, literary techniques, point of view) • Demonstrating evidence of a deep awareness of purpose and intended audience (in informational reports including hypothesis and supporting evidence) • Creating compositions that demonstrate a distinct voice and that stimulate the reader or listener to consider new perspectives on the addressed ideas or themes • Writing an analysis of two selections, identifying the common theme and generating a purpose that is appropriate for both • Gathering, analyzing, and evaluating written information for the purpose of drafting a reasoned report that supports and appropriately illustrates inferences and conclusions drawn

VIP Word/Phrase Protocol

As students read a sentence or paragraph, they underline or highlight the word or phrase deemed most important by the student.

"I had that!" Protocol

As a student shares his or her VIP word or phrase, other members of the class say "I had that!" Teacher determines how many students share a different word or phrase before moving forward.

Getting Started

plickers

Download the App

- In order to scan students' responses, you must have the **Plickers mobile app installed**.
- Plickers is available for free on App Store Google play
- **Only the teacher needs the Plickers App.** Students don't need to download a thing!
- For the **iPad**, filter by **"iPhone only"** and search for Plickers in the App store.

Print Your Cards

- Print out your cards from [illegible] or purchase a set on **Amazon.com**.
- Each card has a **unique number** that can be **assigned to individual students.**
- **Each side** represents an **answer choice**.

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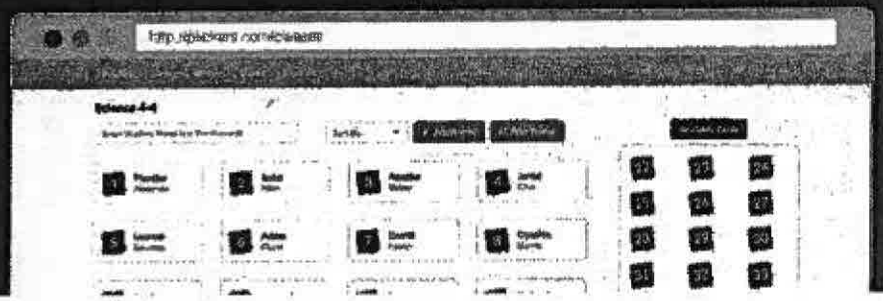
Add Your Class

- Add **classes** and **students** through the Plickers website on the **Classes page**.
- Plickers automatically assigns **card numbers** to **students** as you enter their names.
- Add up to **63 students** per class.



Silent Discussion

A Protocol for Discussion/Reflection

1. **Determine what you want to discuss.** This could be in the form of a picture, quote, question, passage, etc.

2. **Prove your learning on a "graffiti board".** ○

   - Everyone gets a different colored marker
   - Each participant writes on a section of chart paper
   - Can use words, phrases, pictures, diagrams to show big ideas or what you learned
   - No one should be talking during this time

3. **Rotate**

   After 60 seconds, rotate the chart paper clockwise. The next person should add on to what the person before them wrote. (still no talking!) The paper should keep rotating every 60 seconds until it is back where it started.

4. **Open Discussion and Gallery Walk**

   The groups can take about 5 minutes to discuss what they have created on the chart paper, orally pointing out the big ideas they came away with. After the five minutes groups should go around for a gallery walk to look at the charts the other groups have created. (Original groups can come together one more time to discuss what they saw around the room if time permits).

freebie!

Cooperative Learning Group Role Cards

- Encourager
- Scribe
- Time Keeper
- Presenter
- Materials Manager
- Volume Manager
- Conversation Captain
- Checker

Scribe

- collect appropriate data/notes for the activity
- Record any necessary data/notes for the group

Conversation Captain

- read all directions to the group
- lead discussions
- make sure everyone participates
- ask questions to keep the conversation flowing

Encourager

- take responsibility for praising others for a job well done.
- Keep the group focused on staying positive, no fighting

Time Keeper

- hold team stopwatch or watch clock
- Keep group on task and remind them about time

Checker

- check to make sure everyone understands
- re-teach to anyone who doesn't understand

Volume Manager

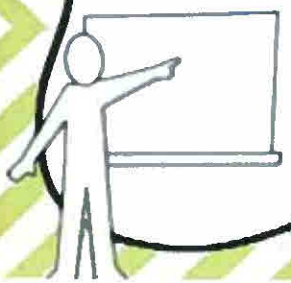
- makes sure voice levels are at the appropriate level
- reminds group where voice levels should be if they get too loud

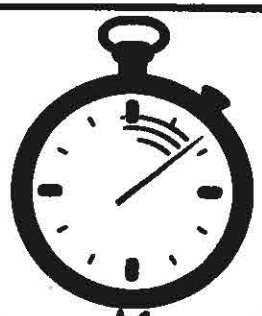
Materials Manager

- collect and return all materials to the appropriate places
- make sure everyone has equal access to the materials/supplies

Presenter

- if needed, will present material to the class
- help the Encourager keep everyone positive and focused





Time Keeper

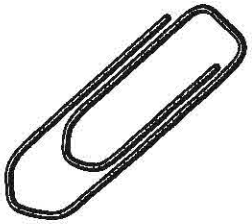
Your job is to keep track of the time left and make sure the group is using time wisely.

Know what time you are supposed to be finished.

Decide how long you want to spend on each topic based on your total time.

Say...
"I think we should spend ____ amount of time on ..."

"Let's come back and finish this discussion so we don't run out of time."



Materials Manager

Your job is to ensure your group has all the supplies or materials that they need to be successful.

When group work is finished make sure all the materials are returned to where they belong.

Say...
"What do we need?"

"What can I get for you?"

"What should we use for that?"

Presenter

Your job is to present the finished product to the class.

Participate in group work and discussion leading up to the presentation.

Make sure you understand the purpose of the work and how you are going to teach people who are not in your group about what you've learned..

Say...
"How do you want this to sound?

"Should this be included when we present to the class?"

Recorder

Your job is to record the important thoughts of the group.

Make sure all questions are answered in complete sentences.

Use good handwriting, punctuation, and spelling.

Say...
"I think you are saying..."

"How do you want me to write that?"

"How can we reword that sentence?"

Leader

Your job is to lead the group discussion.

Help members clear up confusion or answer questions

Make sure everyone gets the chance to participate and share their thoughts.

Keep the group focused on the task

Say...
"What do you think about..."

"Let's hear from ____ next."

"That's cool, but let's try to finish this up."

Reader

Your job is to read the group materials to the group members.

Read aloud the instructions, any passages, or questions to the group.

Make sure the discussion of the group is focused on the question or task at hand.

Say...
"The instructions are to..."

"The passage says..."

"The question asks us..."


Team Leader


Materials
Manager


Quiet Captain


Desk Police

Role Necklaces

for group work

Kindergarten Carnival, 2014


Team Leader
I lead the team in the activity. I also give help to those who need it.

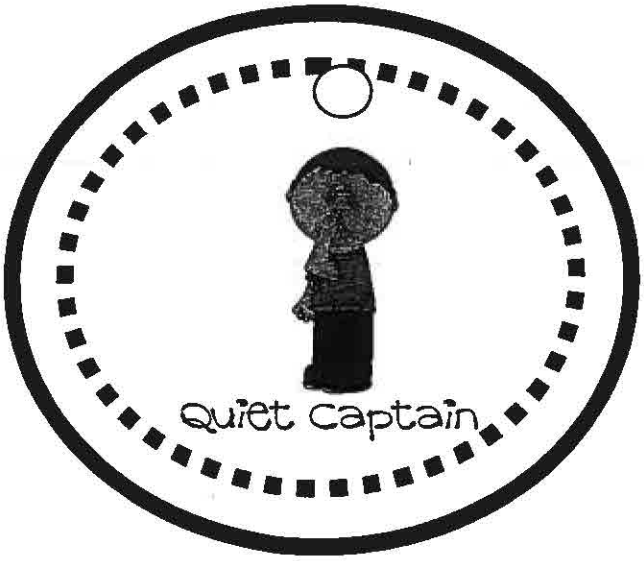

Materials Manager
I pick up and pass out the materials for my team.


Quiet Captain
I make sure my team is quiet and stays on task.


Desk Police
I make sure my team keeps our area clean.


Team Leader

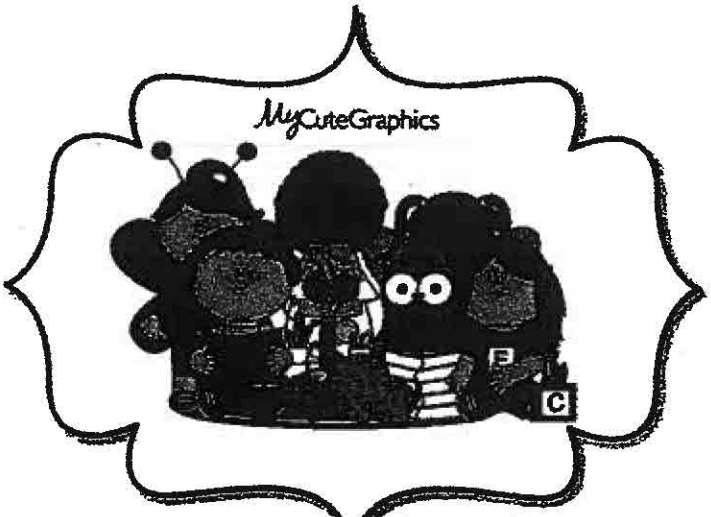

Materials
Manager


Quiet Captain


Desk Police

Special Thanks!

mycutegraphics.com



EXPEDITIONARY
LEARNING

Fishbowl Protocol

Purpose: The fishbowl is a peer-learning strategy in which some participants are in an outer circle and one or more are in the center. In all fishbowl activities both those in the inner and those in the outer circles have roles to fulfill. Those in the center, model a particular practice or strategy. The outer circle acts as observers and may assess the interaction of the center group. Fishbowls can be used to assess comprehension, to assess group work, to encourage constructive peer assessment, to discuss issues in the classroom, or to model specific techniques such as literature circles or Socratic Seminars.

Procedures: Arrange chairs in the classroom in two concentric circles. The inner circle may be only a small group or even partners.

- Explain the activity to the students and ensure that they understand the roles they will play.
- You may either inform those that will be on the inside ahead of time, so they can be prepared or just tell them as the activity begins. This way everyone will come better prepared.
- The group in the inner circle interacts using a discussion protocol.
- Those in the outer circle are silent, but given a list of specific actions to observe and note.
- One idea is to have each student in the outer circle observing one student in the inner circle (you may have to double, triple, or quadruple up.) For example, tallying how many times the student participates or asks a question.
- Another way is to give each student in the outer circle a list of aspects of group interaction they should observe and comment on. For example, whether the group members use names to address each other, take turns, or let everyone's voice be heard.
- Make sure all students have turns being in the inside and the outside circles at some point, though they don't all have to be in both every time you do a fishbowl activity.

Debrief: Have inner circle members share how it felt to be inside. Outer circle members should respectfully share observations and insights. Discuss how the fishbowl could improve all group interactions and discussions.

Variation: Each person in the outside circle can have one opportunity during the fishbowl to freeze or stop the inside participants. This person can then ask a question or share an insight.

Student-Led Evaluative Discussions-Narrative Writing

Step One: Select Roles

Teacher roles: Observer

Student roles:

Facilitator-Leads group through task completion of rubric review, application, and reflection.

Spokesperson: Shares out with class.

Recorder: Records group responses, complete group documents for submission.

Coach/helper: Coached team members through their thinking and learning.

Step Two: Rubric Review-CCSS-Rubric-Narrative

Before students can apply the rubric criteria to conduct their peer and self-evaluations of their new point of view narratives, they need to engage in a student-led discussion of the rubric criteria to make sure they understand the levels of quality and the meaning of the quality indicators for each level.

The protocol below will help guide the student discussion process:

1. Read each quality indicators for each level of quality and identify the keywords in each level.
2. Each group member will take a turn explaining in his or her own words how to interpret the meaning of these key indicators and how they will be applied during the evaluation phase for one row of criteria. If any member is unsure how to explain, they can ask a group member for help.
3. Once all criteria and levels are discussed and explain, reflect on the discussion and as a group determine the key takeaways about narrative writing from this review of the rubric. Jot down one key take away from each group member on a separate sheet of paper.

Step Three: Application of Rubric Criteria to Evaluate Narratives

Each group member will read and apply the rubric criteria to evaluate other group members' Cyclops new "point of view" narrative.

Step Four: Reflection question: Now that you have reviewed the rubric and applied its criteria to evaluate and defend your evaluation of a peer's narrative, address the following:

- What new understanding have you gained about narrative writing based on the patterns and trends that emerge by examining the various levels of quality? What new confusions have emerged about narrative writing?
- What new understanding about using rubric to evaluate have you gained? What new confusions have emerged?
- Discuss and jot down the top three takeaways from your discussion on the same separate sheet of paper from above.

Facilitator

- Lead discussion
- Make sure everyone gets a chance to participate

Time-Keeper

- Keep track of time
- Make sure everyone is using time wisely

Presenter

- Record group notes
- Present final ideas to the class
- Make sure you know the purpose and how to share out

Encourager

- Responsible for praising
- Keep the group focused on staying positive

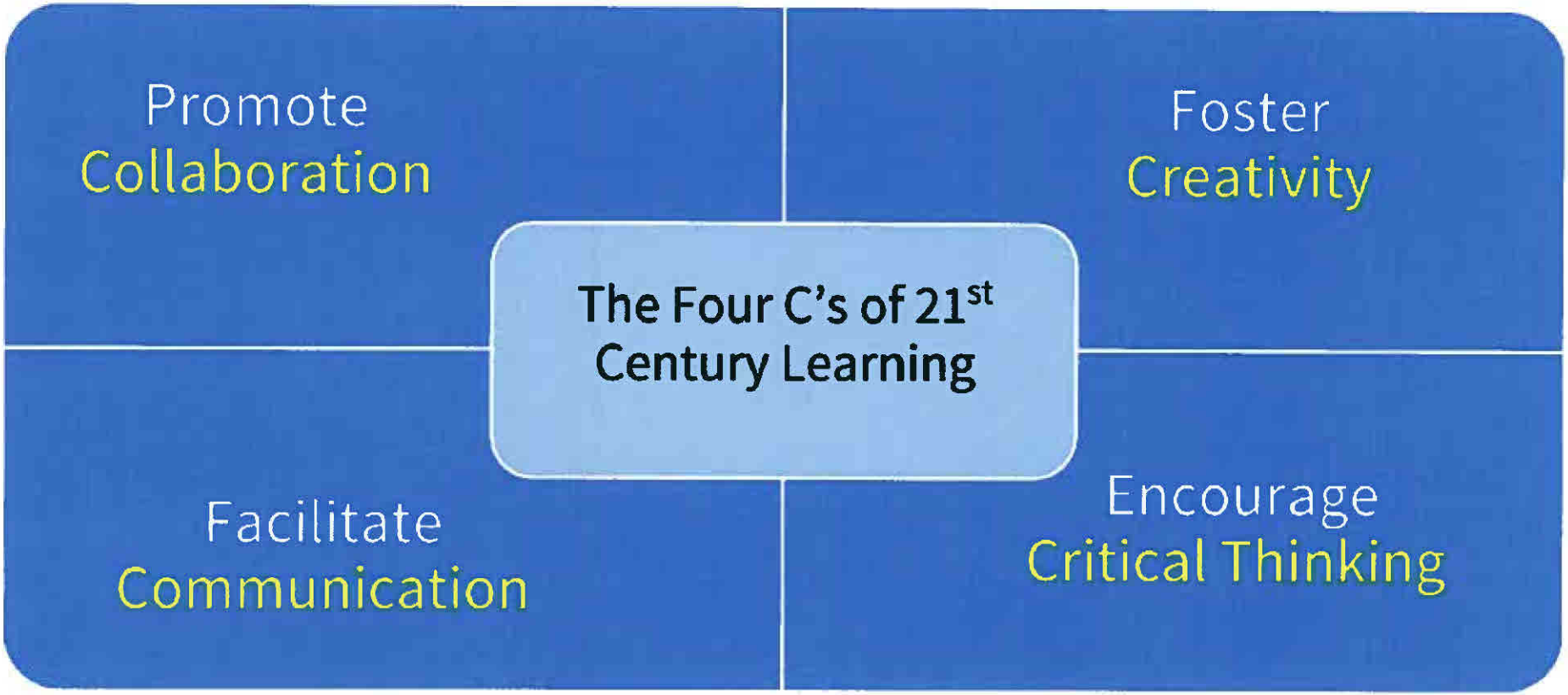
4 R's of Reflecting

Restate - What did you learn?

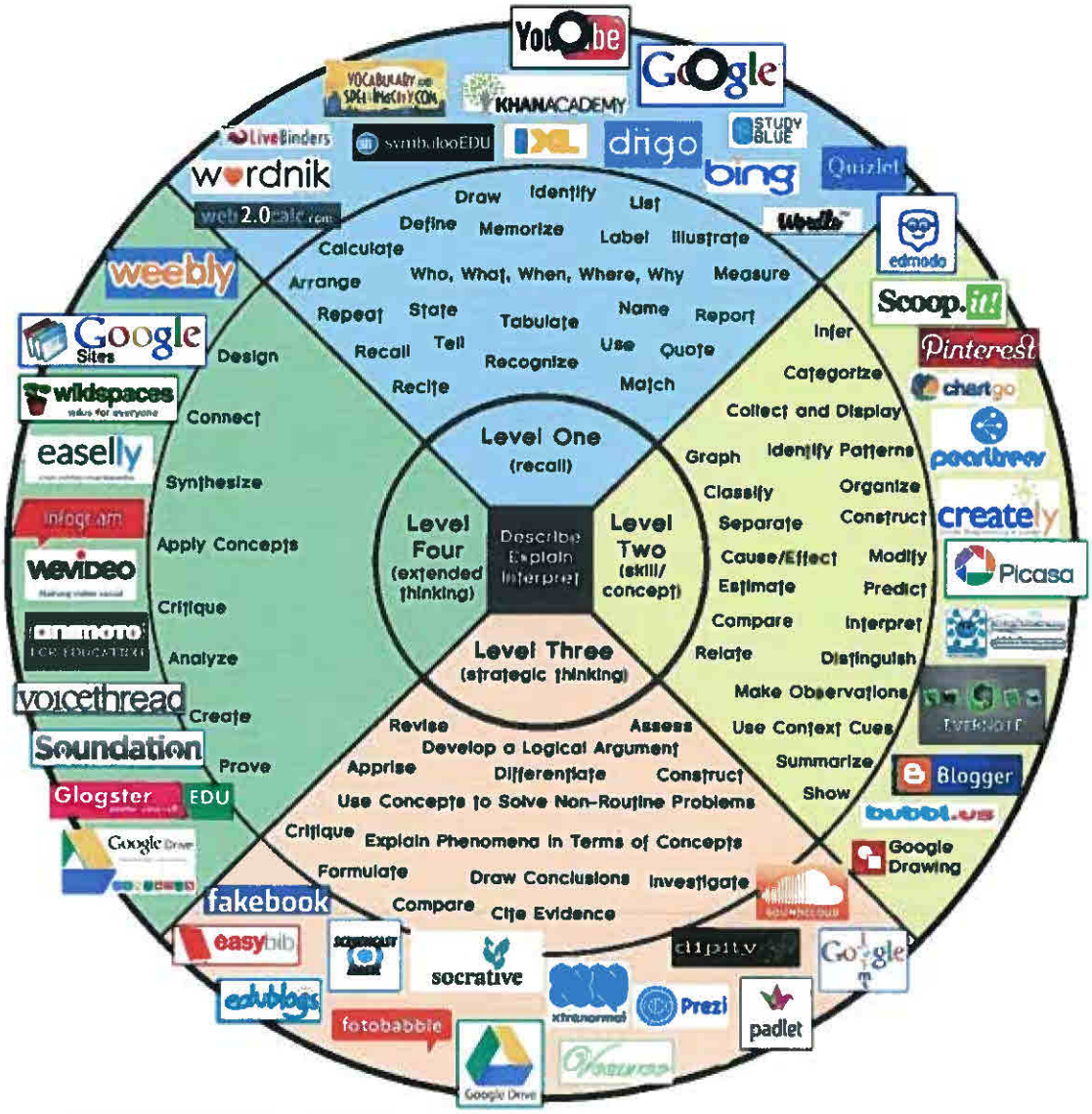
React - What is your opinion?

Remember - Relate to your experience.

Respond with a question.


Promote
Collaboration
Foster
Creativity
The Four C's of 21st Century Learning
Facilitate
Communication
Encourage
Critical Thinking

Webb's Depth of Knowledge & Web 2.0



Level One Activities	Level Two Activities	Level Three Activities	Level Four Activities
Use *Quizlet* to recall elements and details of story structure, such as sequence of events, character, plot, and setting Conduct basic mathematical calculations using *web2 0calc* Label locations on a map in *Google Drive* Represent in words or diagrams a scientific concept or relationship Perform routine procedures like measuring length or using punctuation marks correctly Describe the features of a place or people	Identify and summarize the major events in a narrative Use context cues to identify the meanings of unfamiliar words Solve routine multiple-step problems Describe the cause/effect of a particular event Identify patterns in events or behaviors Formulate a routine problem given data and conditions Organize, represent, and interpret data	Support ideas with details and examples Use voice appropriate to the purpose and audience Identify research questions and design investigations for a scientific problem Develop a scientific model for a complex situation Determine the author's purpose and describe how it affects the interpretation of a reading selection Apply a concept in other contexts	Conduct a project that requires specifying a problem, designing and conducting an experiment, analyzing its data and reporting results/solutions Apply mathematical model to illuminate a problem or situation Analyze and synthesize information from multiple sources Describe and illustrate how common themes are found across texts from different cultures Design a mathematical model to inform and solve a practical or abstract situation

Webb, Norman L. and others. "Web Alignment Tool" pg. July 2005. Wisconsin Center for Educational Research. University of Wisconsin-Madison. 8 Feb. 2009. <http://www.wcer.wisc.edu/WAT/index.aspx>

The Epic BYOD Toolchest (51 Tools You Can Use Now)

by Vicki Davis (@coolcatteacher) Edutopia.org

You've got every device under the sun in front of you. Now what apps are you going to use? Here are the apps or app categories that I recommend you test for your school. There are lots of apps, and these are just my opinion based on what I've used with my students or successfully tested.

Formative Assessment

- Socrative: My all-time favorite app for formative assessment runs on everything. It cut my time teaching binary numbers from five to three days just because I didn't move forward until everyone "got it."
- Google Forms: Yes, you can create self-grading Google Forms for this.
- Kaizena: This tool integrates with just about any platform and was listed on my 15 Best Google Add-Ons (http://www.coolcatteacher.com/best-google-drive-add-ons/). It really helps you provide rock-solid, multisensory feedback on student work.

Screencasting and Capturing What Happens in Class

If you're going to share and interact with your students in the electronic and physical spaces (as you should), you *must* learn how to screencast.

- Screencastomatic: This is my go-to app. It's free, but I pay a few dollars for the pro service because I love it, it gives advanced editing features, and I can download to Dropbox. You can see that my YouTube tutorials are recorded with this.
- Camtasia: This app is high quality, and the price shows it. But I highly recommend Camtasia if you can afford it.
- Explain Everything: This app, available from iTunes and Google Play, remains a top tablet app in the U.S. It's perfect for math screencasting.
- Swivl: It's a robotic stand for your iPad, iPhone, or Droid. When you use the iOS app, Swivl will film and capture everything. It can also follow you without an app, so you could set another device on record and then just put it in the stand. Swivl lets you record speeches, or helps you evaluate your own teaching. Having a Swivl in your classroom changes everything. You just put the controller in your pocket or around your neck, and it follows and records you (mic in controller). I've been demoing this for two weeks and can focus on teaching rather than recording.

Content-Sharing Platforms

Your school is bricks and clicks. You have a physical presence in your classroom and a digital podium through your content-sharing platform. You need a way to share your digital instruction, and kids need to know where to look.

- Sophia: Nudged along by my friend Todd Nesloney, I use Sophia for my computer applications instruction and am very pleased with the results.
- Haiku Learning: This is the full content management system that I'm trying to get our school to adopt. It's multiplatform and robust, which makes it a great fit for our BYOD environment.

There are many other apps like Moodle, Canvas, and Coursesites. The point is that you should have one in a BYOD environment.

Assessment Aids

If you absolutely must do multiple choice (and if multiple choice is all you do, be warned that you're missing out), spend as little time as possible grading. These apps literally make it a snap. You create the quiz, students bubble in the answer, and you snap a picture on your mobile device, which is your own personal Scantron. If you're going to do multiple choice, at least give them *immediate* feedback. There's no excuse.

All three of these apps -- Quick Key, Grade Ninja, and WISE -- are available on iTunes and Google Play, but there are more.

Electronic Note Taking

There are two frontrunners in this category, in my opinion. No one else comes even close:

- Evernote: With a school subscription, you can share notes school-wide. It also does well recognizing handwritten and scanned notes.
- One Note: If you're a Microsoft shop and have admins supporting you, they can configure some very cool sharing abilities in this robust note-taking app -- the only synchronous note-taking app that works.

Expression

Students need multiple ways to share and express themselves, particularly verbally and with pictures. This is part of transliteracy.

- Voicethread: This incredible tool helps younger students build their eportfolios.
  I love Brad Wilson's Write About This and Tell About This iOS apps for kids of all ages.
- Thinglink: Educators who work with special needs kids swear by what a great tool this is. It's web-based, but they also have apps. A must-use!

Cloud Syncing

- Dropbox: If you shoot video on devices and need to get it onto your computers, Dropbox is exsential. I use it to make my classroom as paperless as possible.
- One Drive: This is the tool that goes with Word, Excel, and PowerPoint. I require my students to sign up for it over the summer. It's so great because they can open their documents in free versions of those Microsoft programs when they're away from home.
- Google Drive: This sync tool, underlying all of the Google suite, is a must for the collaborative classroom. We also use this as we edit our wevideos with partners in Iowa.

Graphic Design and Infographics

- Canva: For graphic designs of all kind. I used this tool to redesign the header on my blog and promote my school's events.

  The infographic makers of choice these days include Easel.ly, Visual.ly,Infogr.am, and Glogster.

Color Selection

Color Schemer: You may not have time to go into color wheels and such, but students need to know that certain colors go well together. I cut out all the time it takes to pick colors by teaching them to use this handy online app, and then teaching them to find and enter the hex number for colors in any app they use.

Presentations

I rarely assign one specific software program for presentations. These are my top six that I recommend to students. I expect them to know how to move their presentation slides between these programs. When they are doing a massive online presentation like they recently did for Gamifi-ed, some may create slides in Keynote and others in Haiku Deck, but they all have to export and insert their slides into the group Google Presentation file the day before we present.

- _ Haiku Deck: This is one of my favorite presentation programs for kids because of its tight integration with Creative Commons photos. They're easy to share and run -- wow! And there's a new version for the web.
- _ PowerPoint: Integrate with One Drive, and it's perfect for those kids who will edit on multiple devices. This tool is a plus in a PC-heavy environment.
- _ Keynote: Works with iCloud and picked by students who use Mac and iOS devices.
- _ Prezi: This online presentation tool also has apps to create very interesting presentations that really start off as a mind map.
- _ Google Presentations: If we're presenting online as a class, this is our go-to app. It's the easiest way to edit together. Just know that once you're in presentation mode, students can't change slides.
- _ Slideshare: An excellent platform for sharing presentations and embedding them in the class website or wiki.

Blogging

A student without a personal blog is a student without a voice. Blogging is an essential form of 21st century communication that lets them interact with audience and peers. While I presently use Ning with my eighth graders, I've used all of these powerful blogging tools at one time or another.

- _ Edmodo: This gives you blogging, sharing, and assessment, plus the extensive libraries of assignments that you can join and share with other educators. Even if you don't use Edmodo with students, it's worth joining just to be part of the massively useful educator communities. If you're collaborating between classrooms, Edmodo is one of the easiest ways to do it.
- _ Kidblogs: This platform lies on top of the familiar, easy-to-use Blogger platform and is set up especially for schools.
- _ Edublogs: This blogging platform uses Wordpress in a powerful way, with each student linked to the teacher's blog and to each other. You have lots of privacy settings, and you get a very professional look.
- _ Ning: Ning looks like a social media site because it is. I have a private Ning network that I use to teach my students blogging just because it's so easy and flexible, and feels like Facebook.
- _ Wordpress: Many schools are setting up their own self-hosted Wordpress. It's easier than ever and gives you lots of flexibility for sharing.

Written Expression

- _ Dragon: They have an app on every platform, and some are free. I teach my students to dictate to Dragon and paste into their other apps.
- _ Microsoft Word: Microsoft's recent addition to the iPad has bumped Word back up on my list for collaborative writing. While you'll need a school-wide subscription to edit on the iPad, you can always use One Drive Online for iPad editing if necessary. Students will have to sign up for the free account at home, as Microsoft only lets three people per day sign up at one location.
- _ Google Docs/Drive: Students should know how to collaboratively edit. Make sure they understand the difference between commenting and chatting, though other collaborators won't see the chat, and it isn't saved.
- _ Wikispaces: Wikis are a fundamentally new, vitally important tool for knowledge collection as a group. My favorite is Wikispaces, although there are those who love PBwiki. (To see what I mean, go to Gamifi-ed for a project that my students did with teachers in Alaska.)

Link Sharing

- MentorMob: Think of educational playlists. Lots of Tech Coaches use MentorMob to share with staff.
- Symbaloo: I see this used heavily with elementary teachers who set it as the start screen for kids. It has large buttons that will take kids to websites.
- LiveBinders: When my son was in fourth grade, I used this to create a study platform for sharing material with other parents.
- Google Spreadsheets: See Annie Cushing's Must-Have Tools for the power of sharing links in this way.
- Diigo: Diigo is my must-use social bookmarking tool (I even use it to post to my blog). Students share research in groups (you don't need an email to sign up), and you can link it to blogs and other sources that automatically pull from this.
- Flipboard: While just on the iPad (for now), this platform is a great way to create a digital magazine of resources for your staff.

These are just some of the many tools available for a BYOD Environment. As you're implementing BYOD, learn more about the SAMR model so that you can get past substitution into true redefinition of what you're doing in your classroom.

What did I leave out? Share your must-have BYOD tools in the comments so that we can learn together.

Citation:Davis, Vicki. "The Epic BYOD Toolchest (51 Tools You Can Use Now)." Edutopia, 10 June 2014. Web. 30 June 2015. <http://www.edutopia.org/blog/the-epic-byod-toolchest-vicki-davis>.

Wow and Wonder Protocol: Examining Our Work

This protocol is designed to help unit designer gain understanding about their work, and to learn from each other. The protocol can also be used to examine student work or educator practice. It is essential that the facilitator does not let one person monopolize the discussion.

Roles

Presenter: Shares their work, answers questions, and poses a question or problem for the group to provide feedback or analyze.

Facilitator: Keeps the process moving, explains the steps of the protocol, asks questions, listens, takes notes, and keeps time.

Listeners: Listen, take notes, ask clarifying questions, and reflect on the protocol. The listeners try to give feedback to the presenter and try to help the presenter analyze the issue or question that was presented. It is not essential that the listeners solve the problem posed by the presenter.

Protocol Steps

Step 1: Introduction

The facilitator provides an overview of the protocol and its purpose. Time is established for each step. The facilitator clarifies what to do if the group is not staying within the time limits for each step of the protocol or if inappropriate comments are made.

Step 2: Presentation

The presenter introduces the work. This includes an explanation to help colleagues understand the context and goal. Include anything that is relevant. Then the presenter poses one or two questions they have about the unit they have designed. For example, "I am struggling with my essential questions, I am

not sure if they are really essential questions or if they really hit the most important aspects of my unit?" (5 mins)

Step 3: Reflection

The group spends time in silent examination of the written work and the presentation. This is an opportunity for the participants to reflect and jot down notes or questions. (2 mins)

Step 4: Clarifying Questions

Colleagues ask clarifying questions about the work. These questions help the reader understand what the work consists of and how it was accomplished. The presenter answers the questions factually (Clarifying questions are usually factual questions that can be easily answered by the presenter.). (3 mins)

Step 5: Wows

The presenter moves out of the discussion and silently takes notes during the "wows". Colleagues comment on the "wows" of the work. They state the understanding gained from looking at the work. They describe what the work demonstrates to them and what insights were gained. (3 mins)

Step 6: Wonders

The presenter continues to silently take notes listening for new ideas and perspectives. Colleagues comment on the "wonders" of the work using appropriate probing questions whenever possible. For example, "I wonder if you might have considered that having fewer understanding would make it easier to concentrate on the big ideas of the unit?"

Colleagues also comment on other pertinent questions the work brings up. (7 mins)

Step 7: Feedback

The presenter has time to reflect on what he/she learned. The presenter reflects on how he/she may use the comments provided. What prompted him/her to think differently about the work presented? The presenter should not use this time to define their work or further their actions. (2 mins)

Step 8: Debrief

Participants and presenter reflect on the protocol. (3 mins)

- What was helpful about the process?
- What was difficult?
- How could you use this protocol in other settings?

*Adapted from *Wows and Wonders, Examining Student Work,* and used with the permission of Atlas Communities

NOW WHAT?

Name: _____ Today's date: _____

Directions: You've just completed a fabulous, informative, and inspirational workshop. Armed with new information and practical strategies, WHAT ARE YOUR GOALS FOR IMPLEMENTING THESE APPROACHES to increase your effectiveness in your professional responsibilities? For the overarching SMART goal, write at least two specific Action Steps that you WILL attempt.

My SMART Goal: By _____, _____

_____

_____

WHY did I set this goal? _____

_____

_____

HOW will I accomplish it?

Action Step #1: _____

_____

Action Step #2: _____

_____

Action Step #3: _____

_____

WHO will support me (and in what manner)? _____

_____

_____