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INSTITUTE FOR THE PROFESSIONAL
DEVELOPMENT OF ADULT EDUCATORS

Making Thinking Visible in the Math Classroom

www.floridaipdae.org

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Facilitator

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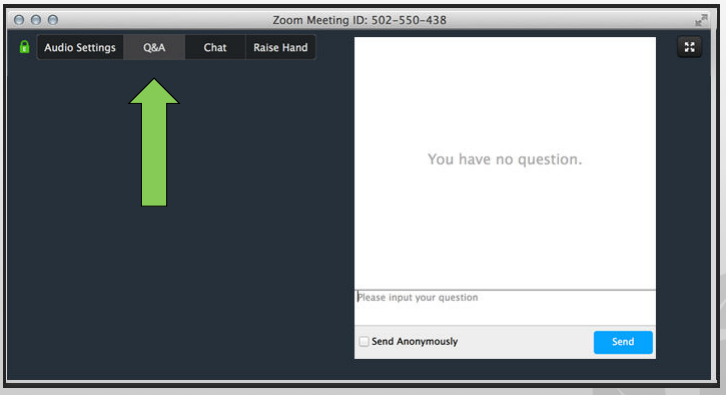
Webinar Things to Remember

- If you have question, please type it into the **Q&A** option.



- Attendee microphones will be muted. You will be in **listen only** mode.
- Today's presentation is being **recorded** and it will be archived and available on the IPDAE website within 48 hours.

Agenda

I. Housekeeping Reminders
II. Objectives
III. Qualities of a Culturally Responsive Classroom
IV. What is Thinking?
V. Activating Prior Knowledge through Brainstorming and Reflection
VI. Some Thoughts on Thinking
VII. Making Thinking Visible Framework
VIII. Some Thinking Routines
IX. Summary
X. Evaluation

Objectives

At the end of this webinar, participants are expected to:

- Increase their understanding of how to make students' thinking visible through application of simple routines.
- Develop ways on how to improve instructional strategies that would allow students to make their thinking visible.
- Develop lessons across content areas which are rich with making thinking visible routines.

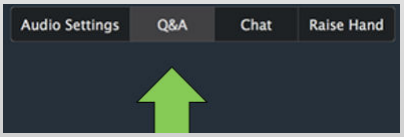
Establishing a Culture for Learning

Qualities of a Culturally Responsive Classroom

1. Understanding how learners construct knowledge
2. Learning about students' lives
3. Being socio-culturally conscious
4. Holding affirming views about diversity
5. Using appropriate instructional strategies
6. Advocating for all students

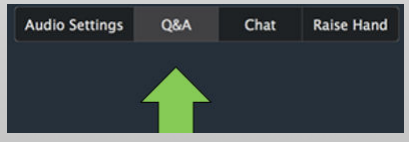
What is thinking?

Using your Q&A tab, brainstorm a list of actions and activities where students are engaged in the given subject.



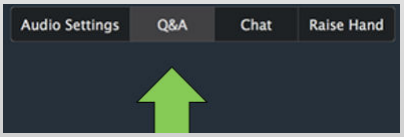
Reflection

- *What actions students spend the most time doing in your class?*
- *What actions students spend the most time doing in a specific subject area such as mathematics, language arts, science or social studies?*



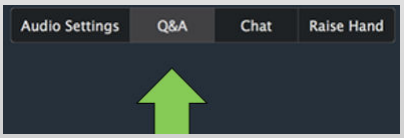
Reflection

- *Now, think about the actions that are most authentic to certain disciplines, things that "real" scientists, authors, mathematicians, engineers, doctors, lawyers or chefs do?*



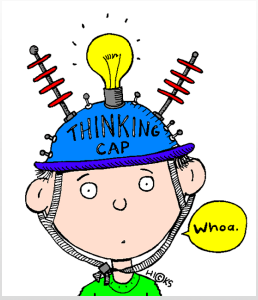
Reflection

- *Now, think about your actions. Think about actions you remember doing from a time when you were actively engaged in developing some new understanding of something within a specific discipline.*



Some Thoughts on Thinking

- Understanding is NOT a type of thinking but rather an outcome of thinking
- The idea that thinking is sequential or hierarchical is problematic.
- Rather than looking at different levels among types of thinking, we should focus on the quality of thinking within a given level.
- Students are most engaged when they are engaged in minds-on learning.



Making Thinking Visible Framework

The Visible Thinking Framework was initiated by Project Zero of the Harvard Graduate School of Education. Project Zero is a community founded by Nelson Goodman in 1967 which studies and improves education in the arts. This community includes Howard Gardner (Multiple Intelligences, 2006) and David Perkins (Smart Schools, 1992).

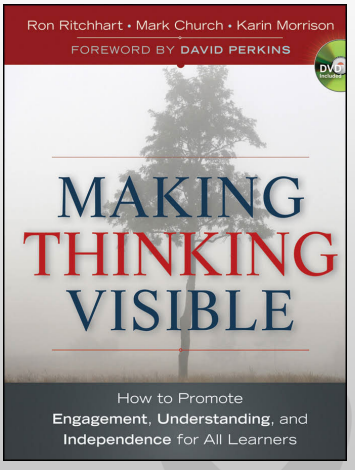
The Visible Thinking research explored the practicality of using thinking routines and documentation as classroom learning tools, developed a framework for pursuing cultural transformation in classrooms and schools, and devised tools for integrating the arts (Ritchhart & Perkins, 2008). This work has spanned elementary through university settings, included both public and independent schools, and involved schools in the United States, the Netherlands, Sweden, Belgium, and Australia.

R. Ritchhart & D. Perkins (2008). Making thinking visible. Educational Leadership, volume 65, number 5, Pages 57-61. http://www.visiblethinkingpz.org/VisibleThinking_html_files/06_AdditionalResources/makingthinkingvisibleEL.pdf.

Metacogntion

The Making Thinking Visible Framework:

- Encourages students to develop a greater awareness of the role thinking plays in cultivating their understanding.
- Allows students to plan, monitor, and control cognitive resources in relation to task demands.
- Fosters an awareness of one's own learning process.



ISBN: 978-0-470-91551-6

Six Principles of the Visible Thinking Approach

1. Learning is a consequence of thinking.
2. Good thinking is not only a matter of skills, but also a matter of dispositions.
3. The development of thinking is a social endeavor.
4. Fostering thinking requires making thinking visible.
5. Classroom culture sets the tone for learning and shapes what is learned.
6. Schools must be cultures of thinking for teachers.

R. Ritchhart & D. Perkins (2008). Making thinking visible. Educational Leadership, volume 65, number 5, Pages 57-61. http://www.visiblethinkingpz.org/VisibleThinking_html_files/06_AdditionalResources/makingthinkingvisibleEL.pdf.

Thinking Routines

Project Zero researchers developed more than 30 thinking routines in collaboration with K–12 teachers. The next few slides will explain a few popular routines used by teachers. Visit **www.pz.harvard.edu/vt/** for more information, including actual classroom examples, on these routines and many others.

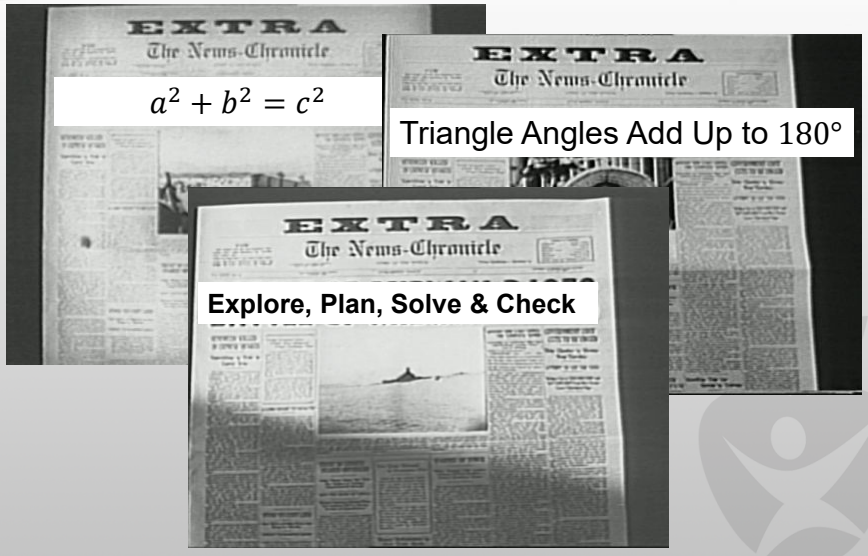
1. Headlines
2. Connect-Extend-Challenge
3. See-Think-Wonder
4. Compass Points

Headlines

This routine uses newspaper headlines to capture the essence of an event, idea, concept, or topic. It works especially well at the end of a class discussion in which students have explored a topic and gathered new information and opinions.

- *If you were to write a headline for this topic or issue right now that captured the most important aspect to remember, what would that headline be?*
- *How would your headline change after today's discussion? How does it differ from what you would have said yesterday?*

Headlines



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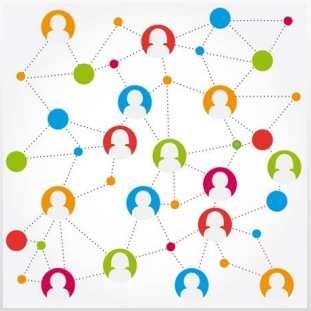
Connect-Extend-Challenge

This routine helps students make connections. Ask the following questions:

- *How are the ideas and information presented connected to what you know and have studied?*
- *What new ideas extended or pushed your thinking in new directions?*
- *What is still challenging or confusing for you? What questions, wonderings, or puzzles do you have?*



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Connect-Extend-Challenge

Formula Sheet Calculator Reference

Type your answer in the box. You may use numbers, a decimal point (.), and/or a negative sign (-) in your answer.

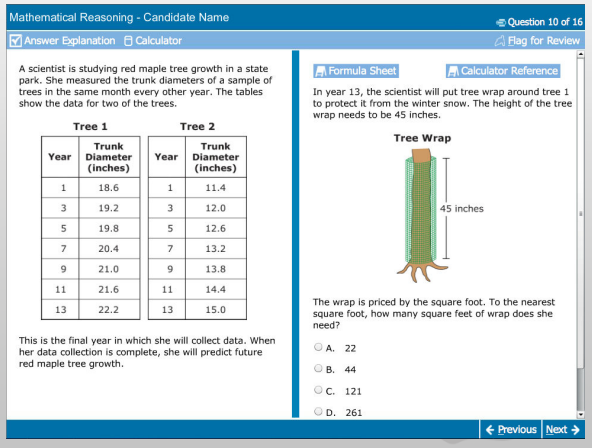
Hartley opened a food truck business to sell food on the street. On day 2, the business earned $112. On day 5, the business earned $367. Hartley assumes that the earnings will continue to increase at the same rate. How much will the business earn on day 10?

$ [ ]

See-Think-Wonder

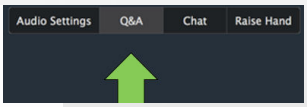
This routine helps stimulate curiosity and sets the stage for inquiry. Ask students to make observations about an object, image, or event, answering these three questions:

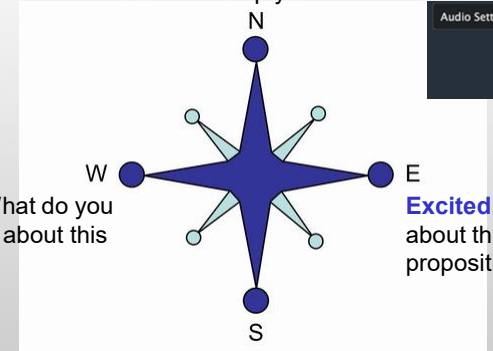
- *What do you see?*
- *What do you think about that?*
- *What does it make you wonder?*



Compass Points

Need to Know. What else do you need to know or find out about it? What additional information would help you?





Worrisome. What do you find worrisome about this idea?

Excited. What excites you about this idea or proposition?

Stance, Steps, or Suggestions for Moving Forward. What is your current stance on the idea or proposition? What steps might you take to increase your understanding of the issue?

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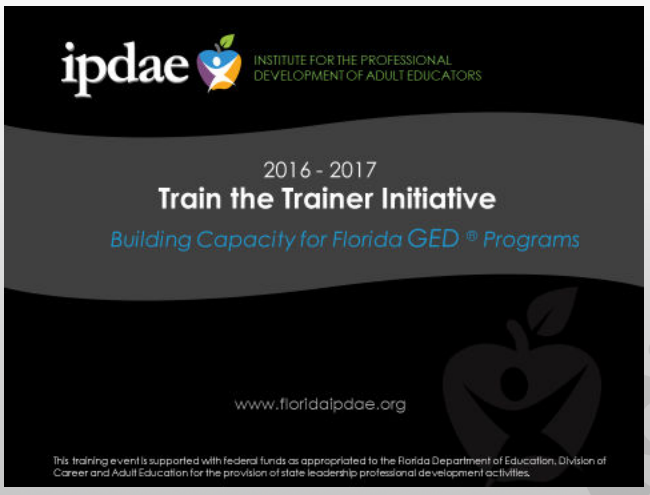
Workshops in Your Area



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Check out the IPDAE Website.

http://www.floridaipdae.org

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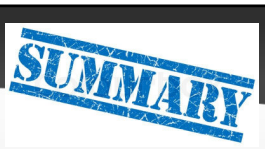
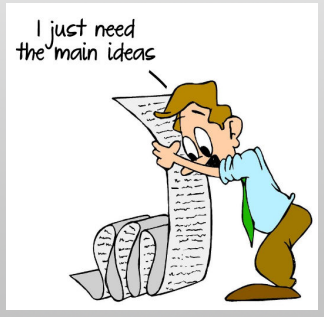


In this webinar, participants:

- Increased their understanding of how to make students' thinking visible through application of simple routines.
- Thought about ways on how to improve instructional strategies that would allow students to make their thinking visible.
- Applied some of the thinking routines in understanding the Making Thinking Visible Framework.



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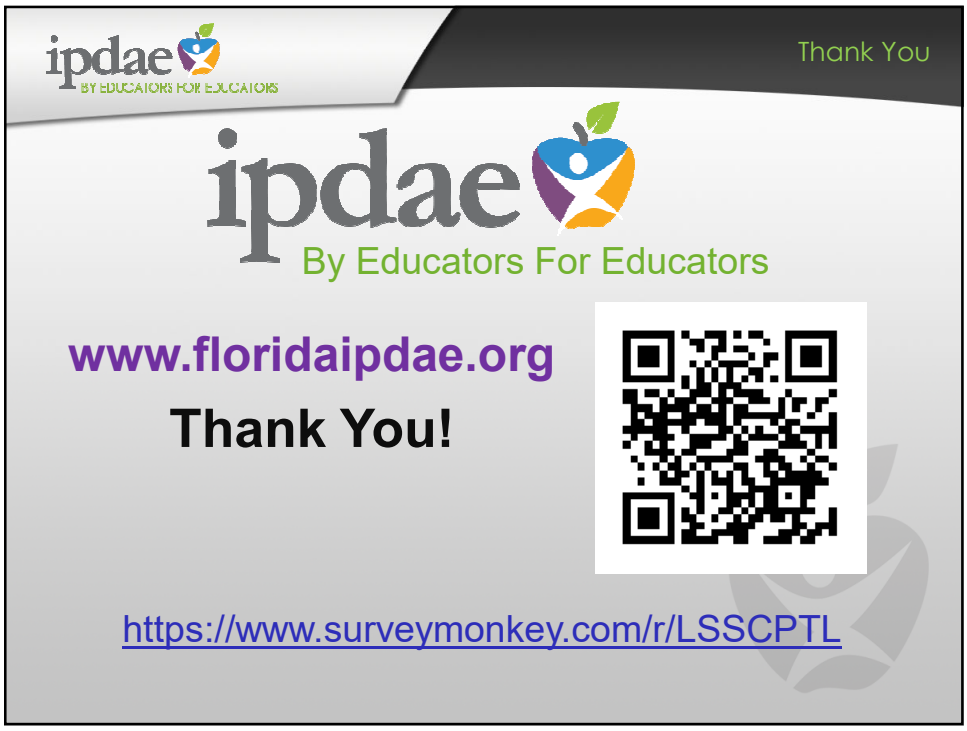
Evaluation

Webinar Evaluation

https://www.surveymonkey.com/r/LSSCPTL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