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FAU Leadership Learning Annual Convening

June 17, 2026

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From Science to System:
Rethinking Education and Professional Learning for Adolescent Development

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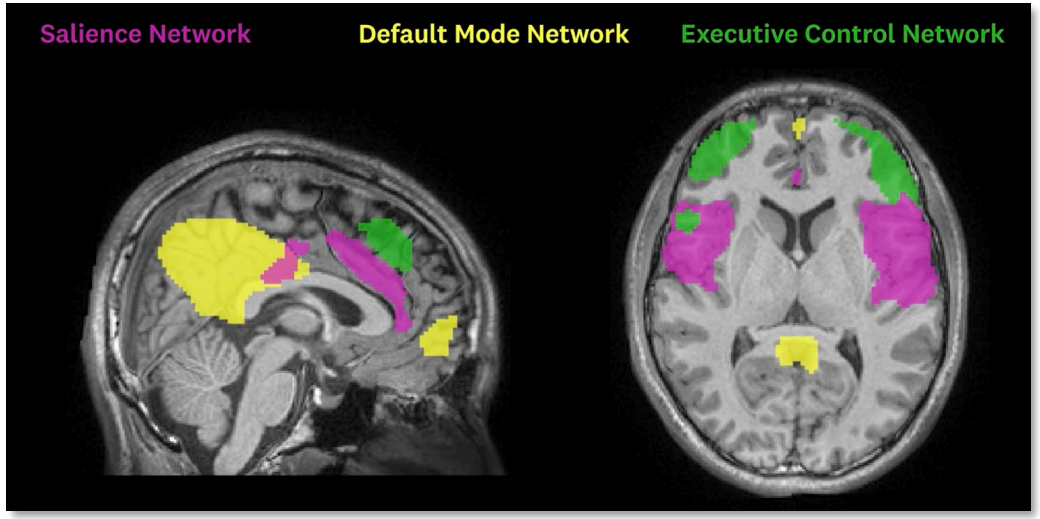
Meaning Making Moment



Discuss

- Talk in pairs/trios for ~4 min
- **Submit questions** with this QR code

What most resonated with you?

What are you left wondering?

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Definition of Transcendent Thinking

The process of **thinking beyond the immediate context of the here-and-now** to consider broader patterns, systems, values, ethics, and possible futures, and to **connect those ideas to one's own emotions, identity, relationships, a sense of purpose, or to society and the larger world**.

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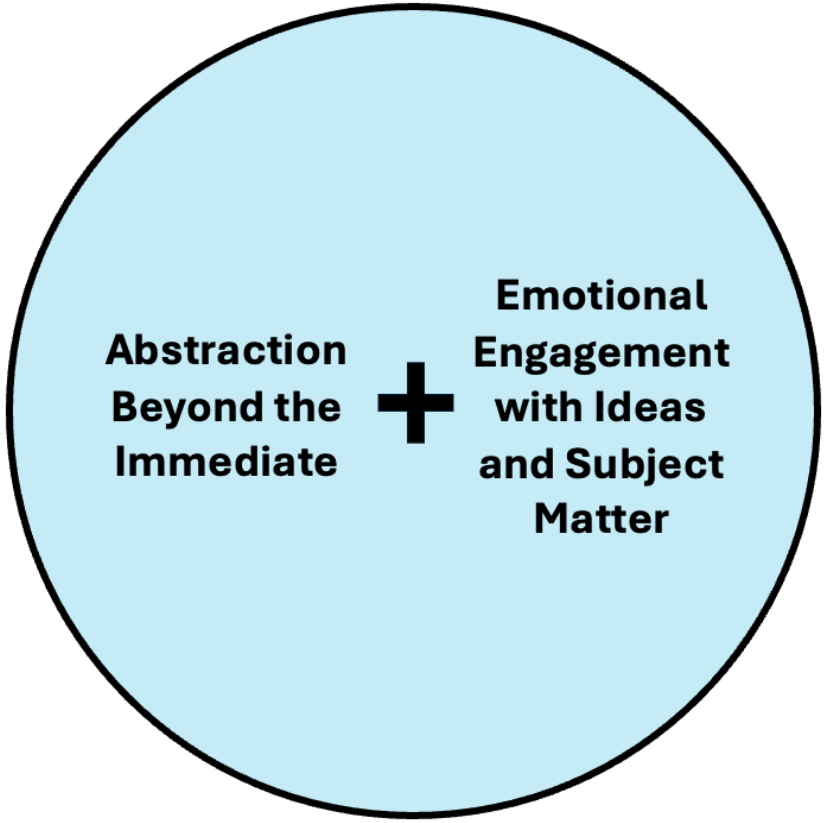
Essential Elements of Transcendent Thinking in School Contexts



Abstraction Beyond the Immediate	Students make meaning by moving from specific facts, texts, problems, or experiences to broader principles, patterns, systems, or concepts.
Emotional Engagement with Ideas and Subject Matter	Students' thinking is motivated and sustained by emotion (e.g., curiosity, concern, wonder, moral tension), signaling that the learning matters.

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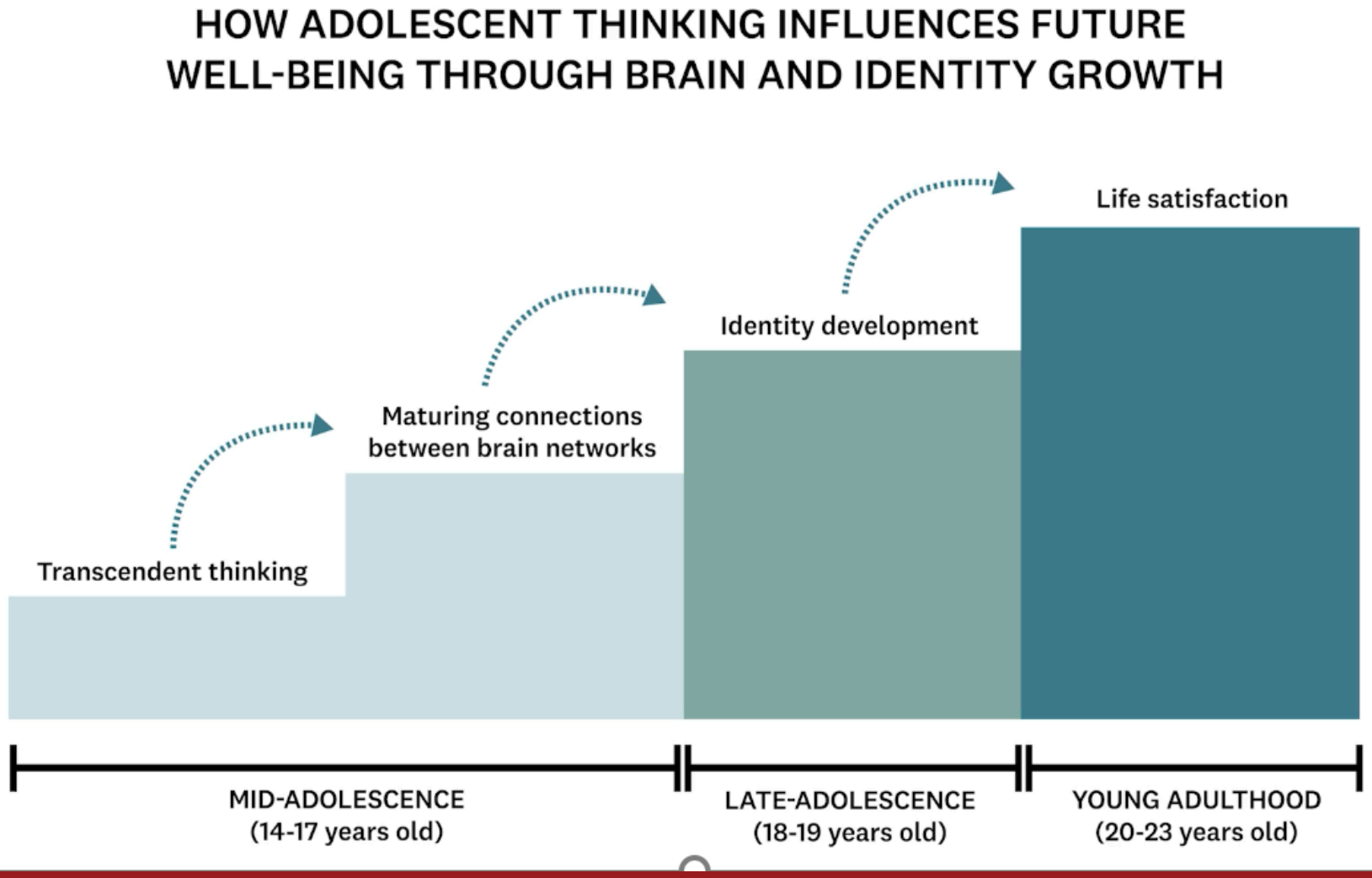
"The Why": Developmental Cascade



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Student Example: Transcendent Thinking

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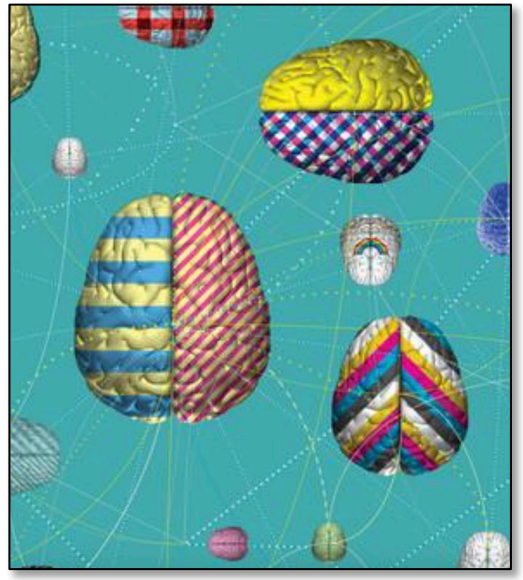
Math Project Presentation: Zeno's Paradox

"I want to be the first person in my family to graduate from college … [but] I never even imagined I could reach that level of math …. Math at [my school] has helped me learn mathematically, learn how to think outside the box, in different strategies. When I was given a problem, I had to think in a new way, research ideas I don't [sic] know before. I have spent two months working on a problem called "walking to the door." … It led me to think about limits and the idea of asymptotes. I had to study fractions to be able to think about the problem I had. Through doing the problem I got fascinated by finite and infinite. I was able to connect it to my life."



Immordino-Yang & Knecht, (2020): "Building Meaning Builds Teens' Brains." Education Leadership, 77(8), 36–43

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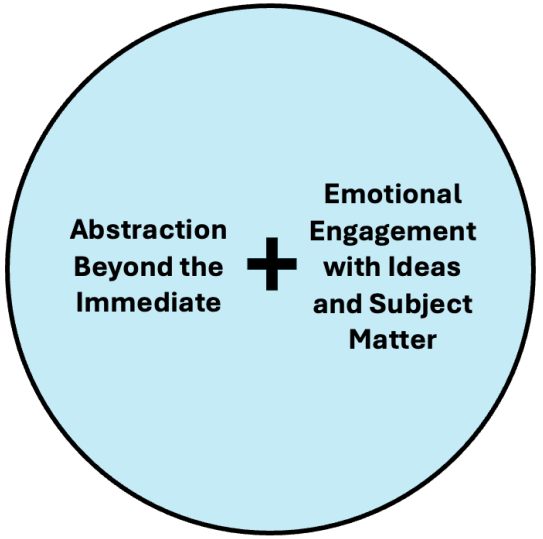

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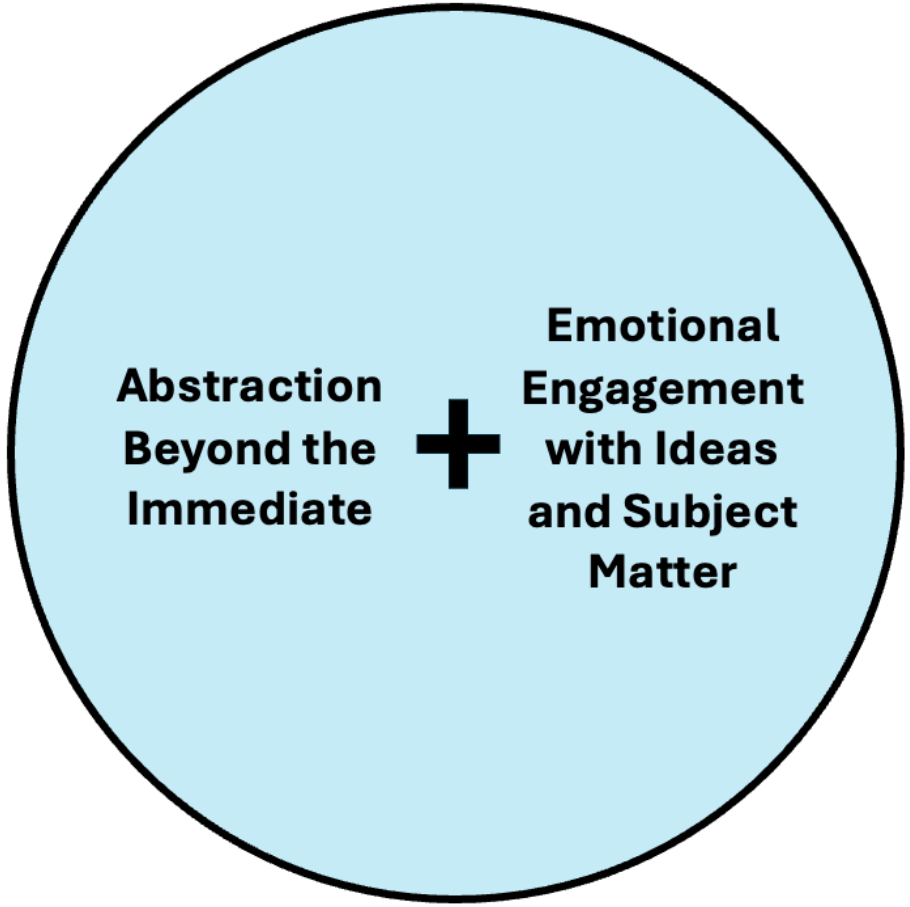
Essential Elements of Transcendent Thinking



Abstraction Beyond the Immediate	When I was given a problem, I had to **think in a new way**, research ideas I don't [sic] know before… It **led me to think about limits and the idea of asymptotes**. I was able to **connect [the problem] to my life**.
Emotional Engagement with Ideas and Subject Matter	I **want** to be the first person in my family to graduate from college … [but] I **never even imagined** I could reach that level of math… I **had to study** fractions to be able to think about the problem I had… **I got fascinated** by finite and infinite.

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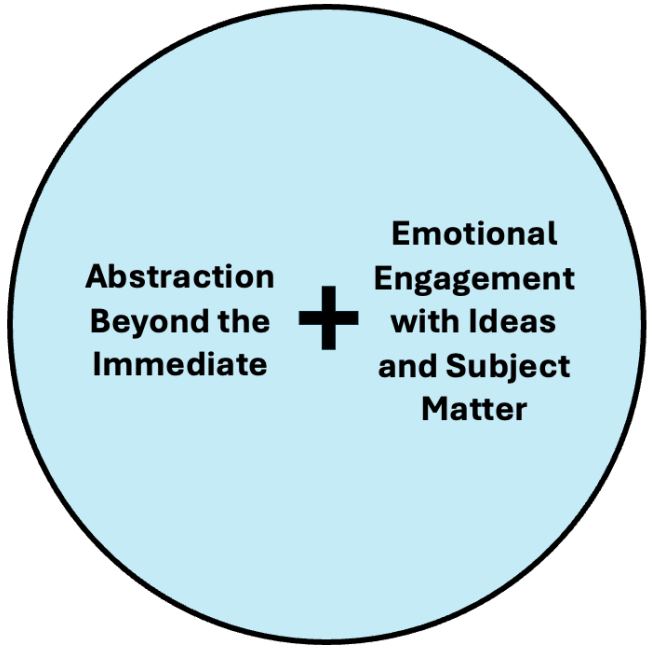
Meaning Making Moment

What is an example of student transcendent thinking from your own experience as a teacher or student?



- Turn and share with a partner
- Each take ~2 min to describe what happened and why it is TT

Submit questions

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Transcendent Thinking: In Practice & “PD”

CANDLE COLAB Programs: Bridging the Science and Classrooms

- Schools with grades 6-12, 6-8, 9-12

Design Intensive: 2025-26

- 30 educators (Teachers + Admin)
- 5 school teams
- Grades 6-12, 6-8, 9-12
- 2 states

Design Sprint: Summer 2026

- 200 educators (Teachers + Admin)
- 32 school teams
- 17 states

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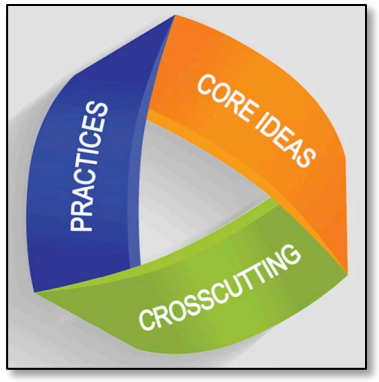
Ana & Tara's 7th Grade Science

Our plan is to transform our Unit 6, *Earth's Surface and Society*, into an experience that encourages higher-level, transcendent thinking in students.



Next Generation Science Standard MS-ESS3-2:
Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

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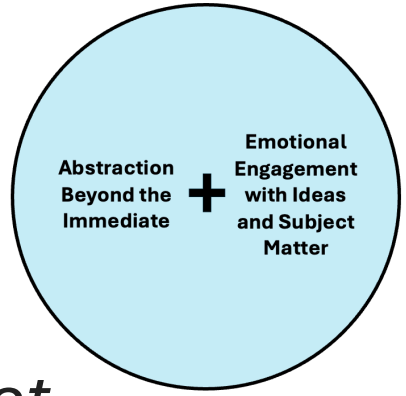
Ana & Tara's 7th Grade Science

Previous Unit Arc:

- Intro to natural disasters
- Reading
- Choose a disaster
- Research it in groups
- Write a report
- Create a poster p
- Present it to the class

Discuss for 2-3min with elbow partner:

What ideas do you have to (re)design this project to promote emotional engagement with the subject matter and abstract thinking beyond the concrete "here and now"?



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Ana & Tara's 7th Grade Science

A natural hazard is just the beginning—it's the ripple effect that changes human history.
Your mission is to choose your disaster, select your investigative lens, and prepare your final poster briefing. The world is waiting for your analysis.

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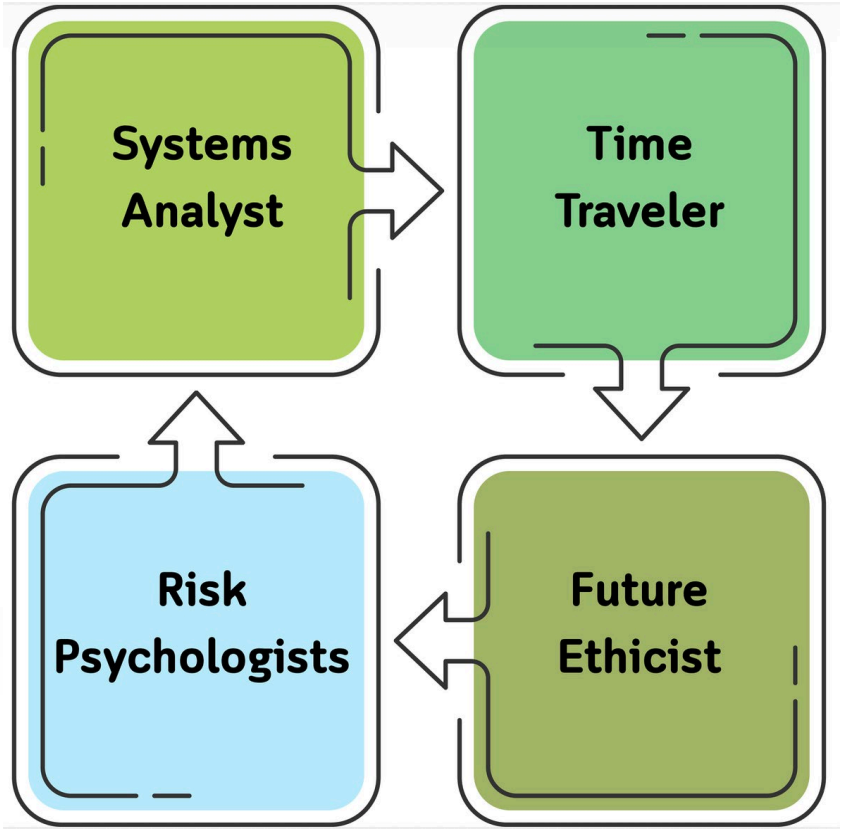
Ana & Tara's 7th Grade Science

- **Choose** a disaster and lens
- **Research** using that lens
- **Connect** with others: same disaster, different lens
- **Reflect** in journal throughout
- **Poster, Presentation, and Peer Feedback**

THE LENS



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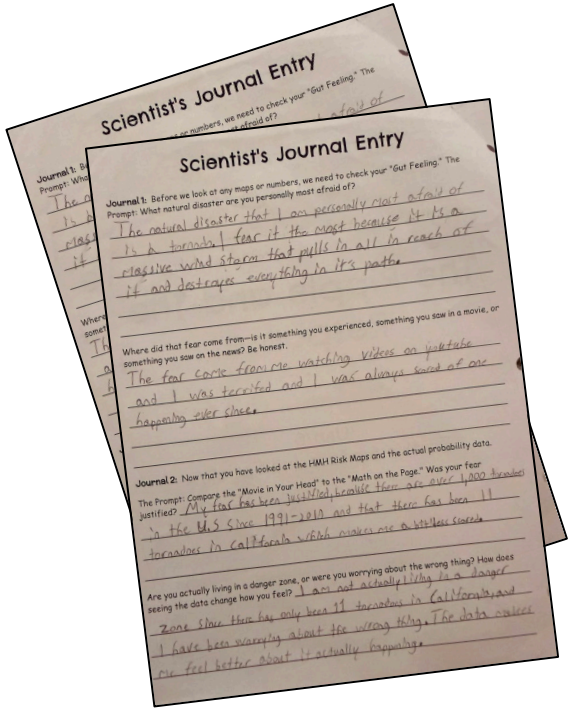
Ana & Tara's 7th Grade Science



Sample Journal Reflection Prompts

Start: What natural disaster are you currently most afraid of? Where did that fear come from?

Middle: Compare the "movie in your head" with the "math on the page." Was your fear justified?

Middle: How does seeing the data change how you feel?

End: Who suffers the most when the system fails and why is this unfair?

End: You started this project with fear. How are you ending it? Explain your answer.

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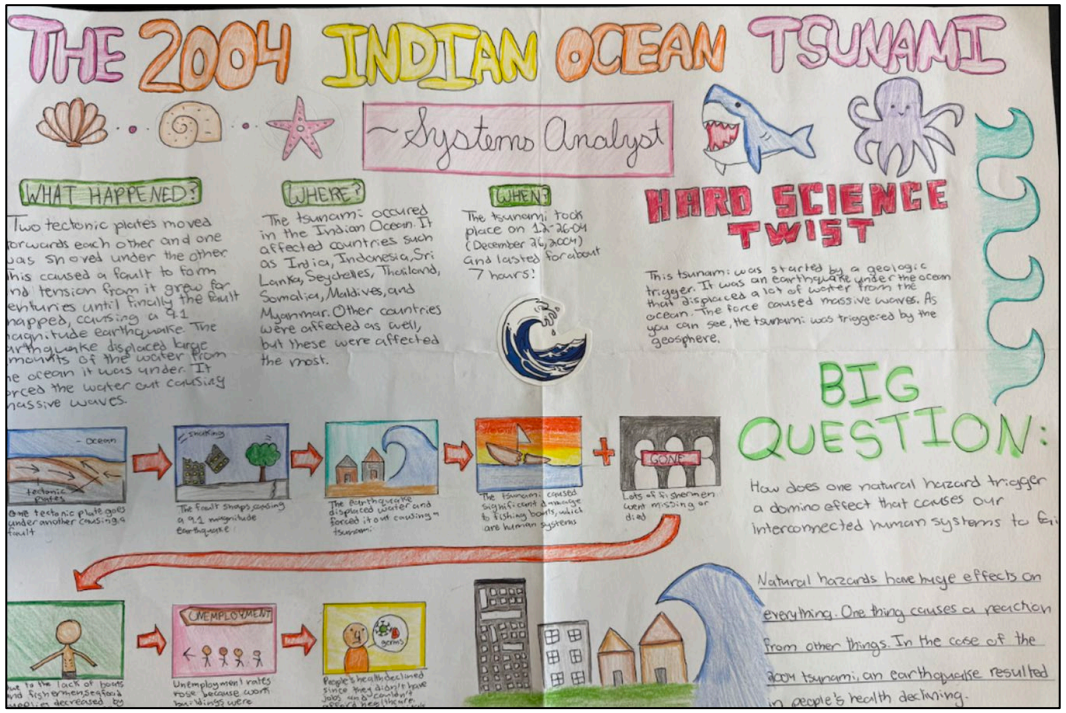
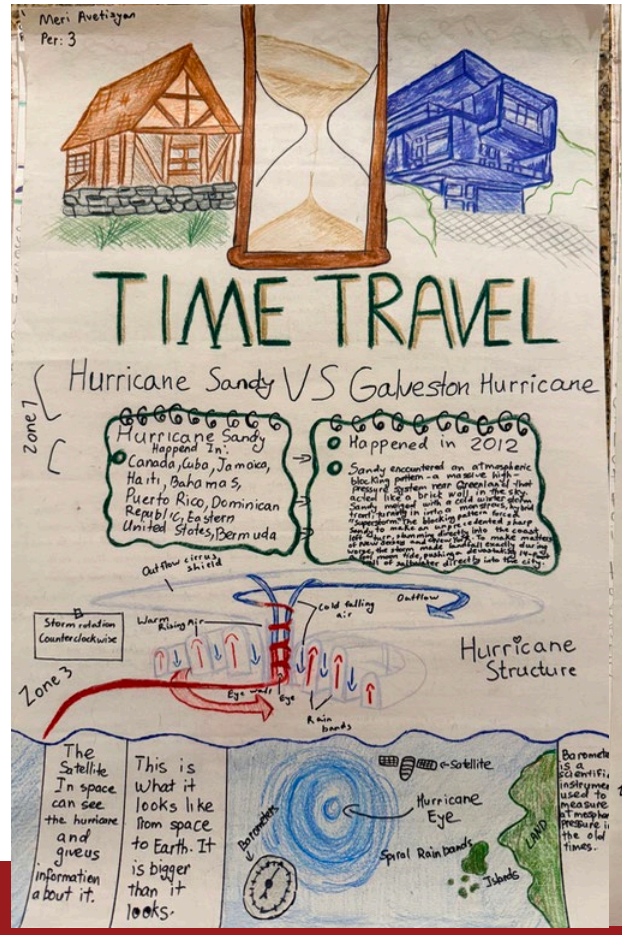
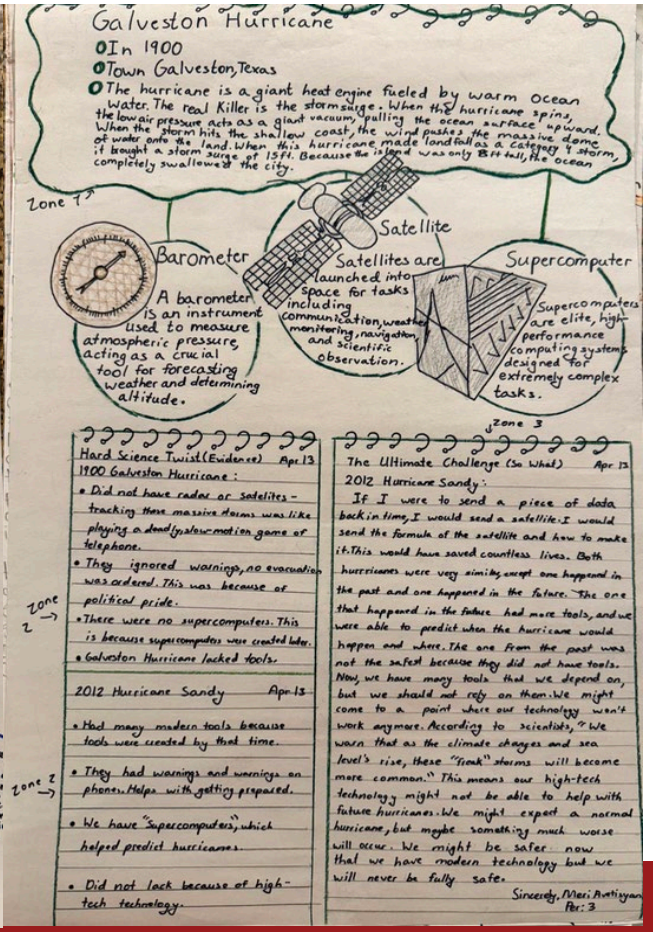
Ana & Tara's 7th Grade Science



Tsunami

Earthquake





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Ana & Tara's 7th Grade Science

- The moment I put on my Time Traveler lens, the tornado stopped being just a storm. My normal self would've only seen the danger, but now I saw its whole timeline at once where it formed, the paths it might take, and the future it would leave behind. It wasn't just a tornado anymore, it was a story stretched across time.

- I learned that systems aren't just shaped by one big movement, but by small choices over time and how well they handle pressure. That applies to everything- sports, music, or even friendships- because success or failure usually builds from patterns, not just one event.

Outcomes:

End of unit knowledge test results were better for most kids, in range of classes, or same as last year.

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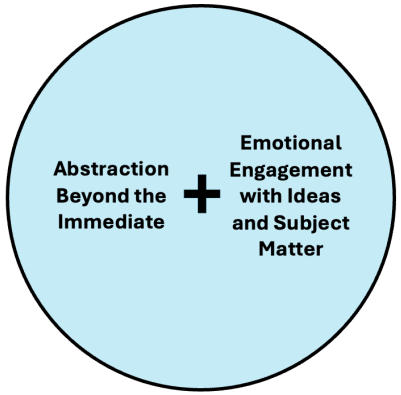
Remember what the neuroscience tells us:

- **Whatever you are having emotion about, you are thinking about.**
- **Whatever you are thinking about, you could be learning about.**

So the question we need to ask is:

- ***What are the students having emotions about here?*** *(The content? Completion?)*



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Ana & Tara's 7th Grade Science

A few teacher moves were consistently observed in the COLAB design and implementation projects.

Anchor learning in big ideas, compelling questions, multiple perspectives

Embed meaningful choice and voice opportunities

Integrate constructive reflection prompts across learning arc

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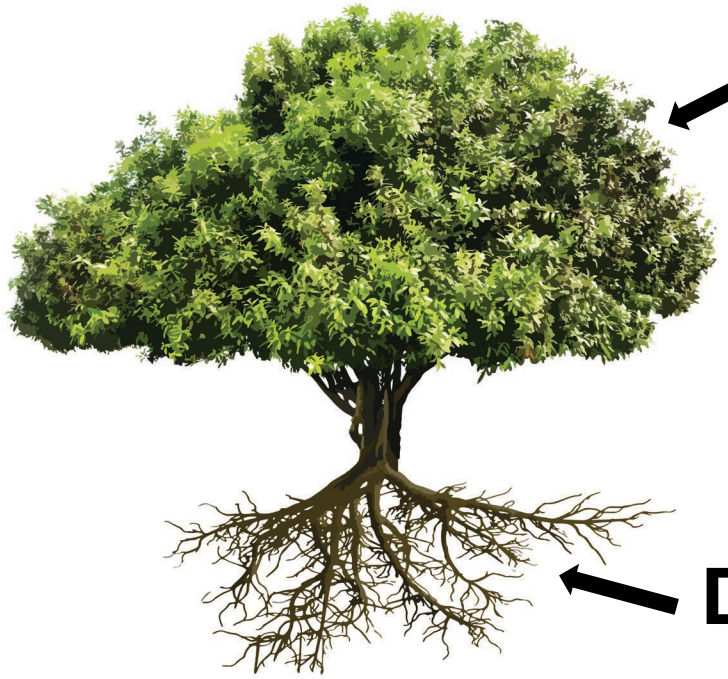
Implications: Teacher Support & Development

- A set of "**teacher moves" alone will not work**



Foundational teaching practices that support ownership and agency: Inquiry projects, low floor and high ceiling tasks, rich content, solo and group activities, varied assessment, and feedback for development

Developmental orientation: Emotions, ideas, relationships, purpose all matter

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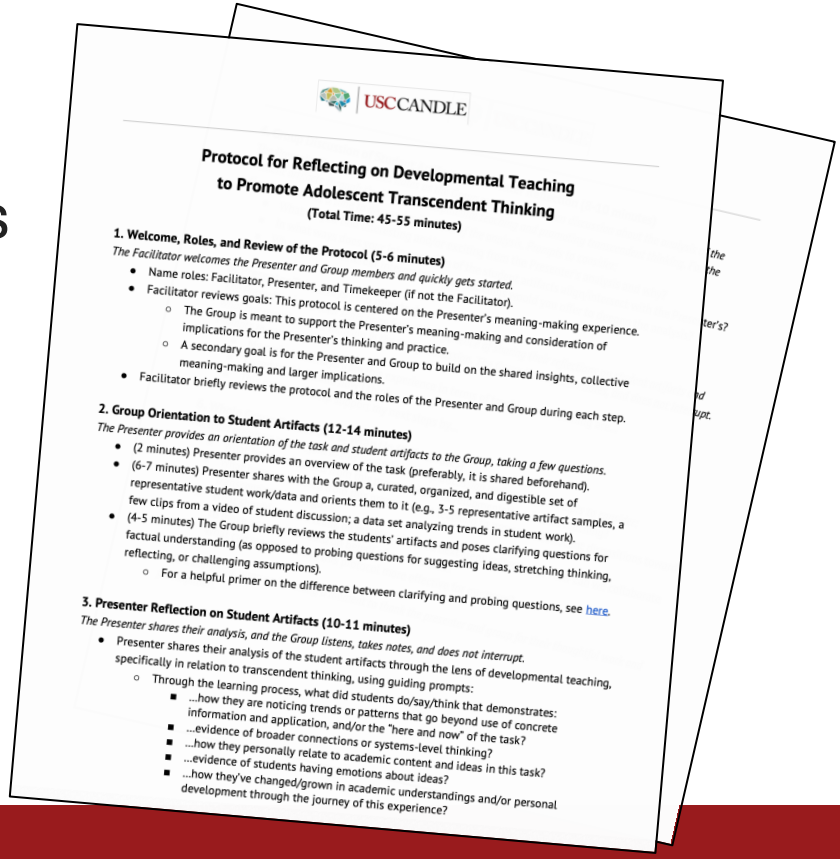
Centering Student and Teacher Work via Collaborative Teacher Team Protocol

- COLAB teacher presentation protocol
- Analysis of student work samples
  - First presenter, then group discusses
- Process insights, listen to various interpreations, offer initial take-aways
- Protocol for 45-55 minute meeting
- Teacher prep time ~1-2hr with support
- Share teacher plans and student artifacts beforehand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Protocol for Reflecting on Developmental Teaching to Promote Adolescent Transcendent Thinking

(Total Time: 45-55 minutes)

1. Welcome, Roles, and Review of the Protocol (5-6 minutes)

The Facilitator welcomes the Presenter and Group members and quickly gets started.

- Name roles: Facilitator, Presenter, and Timekeeper (if not the Facilitator).
- Facilitator reviews goals: This protocol is centered on the Presenter's meaning-making experience.
  - The Group is meant to support the Presenter's meaning-making and consideration of implications for the Presenter's thinking and practice.
  - A secondary goal is for the Presenter and Group to build on the shared insights, collective meaning-making and larger implications.
- Facilitator briefly reviews the protocol and the roles of the Presenter and Group during each step.

2. Group Orientation to Student Artifacts (12-14 minutes)

The Presenter provides an orientation of the task and student artifacts to the Group, taking a few questions.

- (2 minutes) Presenter provides an overview of the task (preferably, it is shared beforehand).
- (6-7 minutes) Presenter shares with the Group a, curated, organized, and digestible set of representative student work/data and orients them to it (e.g., 3-5 representative artifact samples, a few clips from a video of student discussion; a data set analyzing trends in student work).
- (4-5 minutes) The Group briefly reviews the students' artifacts and poses clarifying questions for factual understanding (as opposed to probing questions for suggesting ideas, stretching thinking, reflecting, or challenging assumptions).
  - For a helpful primer on the difference between clarifying and probing questions, see here.

3. Presenter Reflection on Student Artifacts (10-11 minutes)

The Presenter shares their analysis, and the Group listens, takes notes, and does not interrupt.

- Presenter shares their analysis of the student artifacts through the lens of developmental teaching, specifically in relation to transcendent thinking, using guiding prompts:
  - Through the learning process, what did students do/say/think that demonstrates:
    - ...how they are noticing trends or patterns that go beyond use of concrete information and application, and/or the "here and now" of the task?
    - ...evidence of broader connections or systems-level thinking?
    - ...how they personally relate to academic content and ideas in this task?
    - ...evidence of students having emotions about ideas?
    - ...how they've changed/grown in academic understandings and/or personal development through the journey of this experience?

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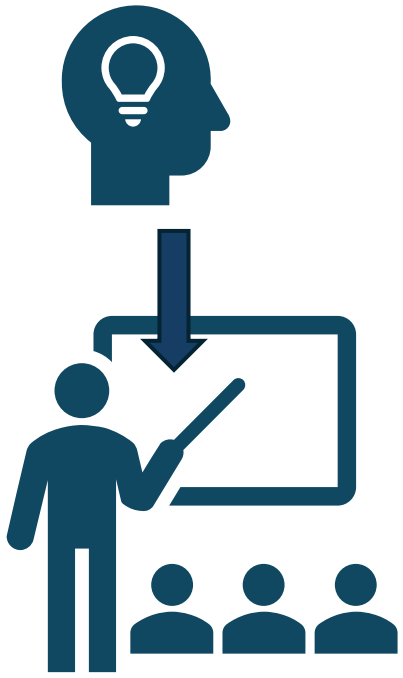
Professional Learning Supports with Impact

Adult Learning "At Transfer" instead of "Seeking Transfer"



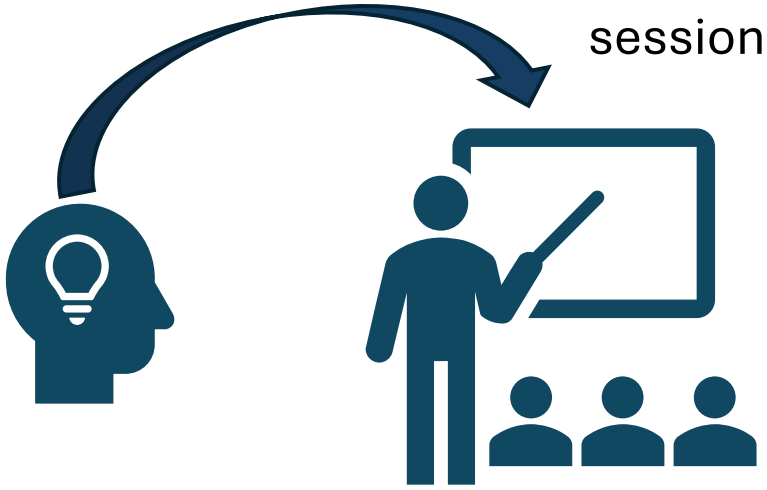
Strategies

- Collaborative inquiry with student work and data
- Elbow to elbow coaching support
- Intervisitations with follow up check-ins
- Supervision cycles with feedback
- Workshop series with use of artifacts

vs.

Strategies

- Pull-out sessions
- One-off sessions (today)



Immunity to Change, Keegan & Lahey, 2009.

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Professional Learning Supports with Impact

Educators also need to be growing and developing as humans.

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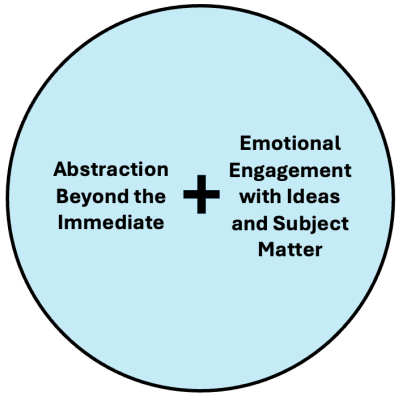

So the question we need to ask is:

What are we having emotions about here?

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COLAB Teachers' Take-aways

"I never ask students how they feel about their learning… this was very new for me… and, like, no surprise, I learned a lot from it."

"I removed a lot of scaffolds, which was a little nerve-wracking for me… I think it paid off… Maybe that's why it was so powerful for them…because they had, like, full control…"

"…when we just started this, I thought my results were like, I'm either gonna see [transcendent thinking] or not. I feel like it's more like on a spectrum… My main takeaway is transcendent thinking is like a muscle. The more you work on it, the stronger it will get."

[On engaging students in transcendent thinking] "You gave me a taste for it… Now I'm really chasing that!"

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Questions & Answers

Contact: Doug Knecht: dknecht@usc.edu