

Consolidation with Peter Liljedahl

[Honest Math Chat Episode 93](#) and [Episode 96](#)

Why consolidate?

- Ideas are unorganized, unstructured, and informal at the boards.
- Our effort to help students turn chaos into order.
- It doesn't mean we stand and give the lecture that we would have given at the beginning of the class ten years ago. This is us pulling on their sense making and helping them organize it and finish the sense making process.

Rich, Divergent Tasks and Consolidation

- Rich, divergent tasks often lead to a gallery walk of selected, sequenced work. We won't look at all the boards and we might not even look at all of a board, just select parts. It's a guided gallery walk, not a free for all.
- Consolidation is the hardest practice and takes the most teacherly craft.
- Never let the group present their own work.
- There's a lot of turn and talk.
- We have to learn from our students. Anticipation prepares me for anywhere from 5 to 10% of what's going to happen. Experience prepares me for the rest.
- The second time I do something is way better than the first but not nearly as good as the third. Be a learner in that space.
- Often when Peter tries a new task with students, he doesn't think about it ahead of time. He wants to be a learner in that space. He's more responsive to them and is listening to what students he anticipates them saying.
- Knowing the math well gives you the confidence to know you can improvise as necessary and use those skills to interpret what the students are doing.

Convergent, Thin Sliced Tasks and Consolidation

- In a convergent task, every group is doing exactly the same thing. They're not actually showing their thinking. Their thinking happens in discourse. Answers are what's on the board. A gallery walk doesn't work.
- A teacher scribe is when a teacher puts some questions on the board but are in the wrong order. Students decide the order and then the teacher scribes how students would solve them.
 - We don't do all of question one and all of question two and all of question three. "What's the first step on question one? Can we do the same first step on question two? Can we do the same for question three?"
 - We never finish any of the tasks. It leaves their brains itchy. This also helps kids focus on the process instead of the answer.
- K-3 data on this type of consolidation:
 - Third grade is pretty good.
 - It doesn't work with kindergarten. They struggle to put tasks in order.

Multiple Representations

- We want multiple representations because it thickens their understanding.
- Multiple representations also help us mediate from A to B. A manipulative helps us get from A to B. A drawn representation helps us get from B to C. A symbolic representation helps us get from C to D. That helps us get to abstract understanding.
- Regardless, we want to help them represent in at least two modalities. Drawing and writing. Talking and writing. Manipulating and writing. Manipulating and talking.

Being Responsive

- We have to be nimble. If students aren't making connections, I can give a hint. I can plant a seed. I can send a group to look at another group's work. I can't force them to make connections.
- Consolidation needs to be a reflection of what happened in the room that day. Move from the bottom up. Start with something everyone can do.
- At the end of consolidation, every student should be further ahead than they were at the beginning, but they shouldn't all be up at the ceiling. That's too big of a life.
- Be responsive to what we have in the room that day and work with that.
- I have to be willing to lower the threshold or level up.
- It's harder to do than you think.
- What are you paying attention to? We've been trained to look at the math and pay attention to errors and answers. Pay attention to body language. This tells you where they are as learners and their progress.
- When we teach math, the students get in the way. When we teach students the math gets in the way.

Ingredients of Productive Struggle

- It's not just propose a challenge.
- When students meet challenge on the heels of success, they are more likely to enter into productive struggle than when they meet challenge without prior success. Prior doesn't mean yesterday or last week. Prior means 30 seconds ago.
- Give them quick wins first.
- Struggle with confidence.

Practical Next Steps

- Do a bit of self-reflection of where you are in your own journey. If you haven't implemented a thinking classroom yet, consolidation is not the place to start. Don't jump ahead.
- Ask yourself, "Do I have a convergent task or a divergent task?" If have a divergent task see if I can capture some different ways of thinking on the boards. If you have that, you have the makings of a good consolidation. Pick three boards and take five minutes total. That's where you start.
- If you have a convergent task, you need a sequence of tasks that get progressively harder. However far you get through on that list, a question exactly like that one is the

ceiling, something like the first task is the floor, and something in the middle is your middle. Scramble the order and ask students to put them in order.