



# THREE WAYS TO MAKE CLOSURE MEANINGFUL IN YOUR MATH BLOCK

By: Carly Epstein

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## What is Closure?

Closure is an invitation to reflect on an experience from the balanced math block. Closure is about the collective and collaborative sharing and connection of ideas to support conceptual understanding and growth. It is the part of the math block that focuses on facilitating connections between student models, strategies, effort and ideas. It holds space for student to student discourse to promote flexibility and sense making, and accounts for student reflection, disposition, affect and effect. Closure honors hard work, highlights struggle and choice, and provides space for metacognition which allows for more insight to happen. Closure is a dynamic and authentic time for synthesis where students connect and deepen their conceptual understanding and foster a class culture that promotes access and inclusion for all. Closure is a critical component and yet continues to be significantly underutilized.

When we think about closure we often think about the end of the block. Throughout the All Learners Lesson Structure you often see it listed at the end: Launch, Main Lesson, Math Menu, Closure - it doesn't have to be. In fact, you may have closure in two different parts of your math block - following the main lesson or following math menu or both! Remember closure is a way to share, synthesize, compare, and analyze ideas. This can and should happen throughout learning. There is no one right way to close a lesson, what is important is that it is purposeful and part of the daily routine.

To be fair, sometimes, as educators, we just run out of time. We have all been in the position where a student tells you it is time to go to music and the block has to end. In



this case, you could start your math block the next day by turning student work into a launch routine that mimics the same closure conversation you ran out of time for the day before. This flexibility offers an inclusive opportunity to support access through continuity of context. By revisiting previous learning from the day before, many students will have more access points to today's targets.

Regardless of where you position closure the important thing to remember is doing it consistently and with purpose. What do you want students thinking about, reflecting on, or generalizing?

As teachers you want to ask yourself:

- Did students understand the purpose or target of the lesson today? If not, what were the roadblocks?
- Did students significantly retain what they were taught or did they find it very difficult to comprehend?

Closure is really about formative assessment.

In order to elevate closure as a critical informational gathering part of the math block, there are 3 purposes to focus on, including: synthesizing and consolidating content, reflecting on process, and considering affect and effect. These three points are not exhaustive, but capture significant focal points we want to make sure students are routinely engaging with throughout their math experiences.



Each of the aforementioned purposes highlight ways we want students thinking about their learning. They are ways for students to engage in meaningful discourse to make connections and grow their ideas about content, process, and affect. All of which contribute to students' math identity, community culture, and understanding of content. They are also ways in which educators can elevate student engagement and empower each student to make choices about how they make sense of and learn math each day.



## Synthesis and Consolidation

When selecting, sequencing and connecting in closure, we elevate students as the voice of authority by making their work public (Smith & Stein, 2011). There is a focus on publicizing their ideas and asking all students to make sense of the math purpose for the day. We can use talk moves to engage and use questioning to facilitate connections through student to student discourse. There are different ways we can choose to select, sequence and connect. We are going to focus on one way:

- Select to elevate voices and big math ideas
- Sequence for access
- Connect to use student voice to build mathematical connections

Select work that uses models and strategies at different levels of complexity. This supports access and provides opportunities for connections in discourse. When sequencing work, start with the most accessible and move to the most abstract. This is the crux of facilitating with access and inclusion in mind. This is NOT about a linear progression to an end all be all of abstract mathematics being the best model, but about supporting access and connection making between concrete, representational and abstract models along with the critical strategies students apply to them.

Educators can use predictable question stems like, 'What do you notice about \_\_\_\_\_'s work? What sense can you make of it? Turn and talk...' This is about all other students engaging in a piece of student work.

Select a student to share based on what you heard from the turn and talk - this helps you facilitate the math focus and conversation. Always confirm with the student's work you are looking at before moving on to other students' work.

Repeat the same process with another piece of work. Ask the same questions and use talk moves to hold all students accountable for sense-making around the math purpose.

Following the second model, ask, "How are these two models and strategies the same? How are they different?" We want students to make connections between models and strategies to help them build conceptual understanding through discourse.


At the end of the selecting, sequencing and connecting process you could probe for reflection by asking, 'Of the strategies we saw today which one feels most efficient for you right now? Which one could you use to try and solve another problem like this one?'



## Reflection

Now let's take a look at how we might use closure as a way to reflect on organization, a new model/strategy or partial thinking. Reflection offers students the chance to celebrate unfinished learning and plan for next steps. Reflection is a great opportunity to think about a common misconception and problem solve new insights. Sharing to reflect also asks students to compare and analyze ideas different from their own. It promotes sense making and asks students to consider other perspectives to build flexibility and connection between different models, strategies and ways of thinking. This is a great way to keep math flexible and predictably unpredictable which allows students ongoing opportunities to think for themselves and build from their own assets.

$12 \div 3 = 4$  cookies each



• = Cookie  
○ = Friend

I know  $2 \times 6 = 12$  so  
12 split with 2 friends is 6  
 $12 \div 2 = 6$

**Turn and Talk**  
Which of these strategies made the most sense to you and why?



cookies (yum)

3 cookies	○	○	○	1 friend	$4 \times 3 = 12$
3 cookies	○	○	○	2 friends	
3 cookies	○	○	○	3 friends	
3 cookies	○	○	○	4 friends	


## Affect & Effect

Asking students to consider their affect and effect during math is critical to their math identity and sense of belonging. It is also a great form of qualitative assessment for the educator.

### Consider Affect



- How are you feeling about adding and subtracting 2 digit numbers?
- What makes a good game partner?
- What part of math made you feel successful and why?
- Celebrate a point of struggle! What was a challenge today:
  - Working with a partner
  - Decomposing numbers



Considering affect in closure offers a productive way to gather student feedback about different parts of the math block. The educator might ask closure prompts like: 'what was the best or trickiest part of Math Menu this week? What model or strategy made you feel successful this week and why? What would you like to see on the Math Menu next week? How did you grow as a mathematician this week?'

Considering affect and effect is also a great way to problem solve SEL skills. Educators may ask students questions like: 'how did you decide what to start with today during Math Menu? What is one thing you did today that helped someone else be successful in math? What do you need from your classmates to be focused and successful in Math Menu? What makes someone a great partner in math games? What can we do to make sure we are ready to do our best learning?'

### **Structuring Closure**

Lastly, it is important to consider different structures for closure. Again, this resource list is not exhaustive. It is a place to start considering how different closure routines can support access, inclusion and engagement for all students. Closure is where deep connection happens. It is so much more than exit tickets and additional assessments. It is the opportunity for all students to bring their understanding, models and strategies, affect and effect to the community to connect and consolidate learning and grow collectively and collaboratively.

**What Now?** Scan the QR code and scroll to the bottom of the post for links to next steps



1. Read more about the All Learners Lesson Structure in chapter two of our book, Teaching Math for All Learners.
2. Check out this blog - Seven Closure Activities for Your Math Block.
3. Bring All Learners Network (ALN) into your school or district for embedded professional development.

