MLR 6: Three Reads

Purpose: To ensure that students know what they are being asked to do, create opportunities for students to reflect on the ways mathematical questions are presented, and equip students with tools used to negotiate meaning (Kelemanik, Lucenta & Creighton, 2016)**.**

This routine supports reading comprehension, sense-making, and meta-awareness of mathematical language. It also supports negotiating information in a text with a partner in mathematical conversation.

There are a variety of different variations on the Three Read protocol. Here are three of them:

Example 1

Students are supported in reading a situation/problem three times, each time with a particular focus:

1. Students read the situation with the goal of comprehending the text (describe the situation without using numbers),
2. Students read the situation with the goal of analyzing the language used to present the mathematical structure.
3. Students read the situation in order to brainstorm possible mathematical solution methods.

This routine works well in conjunction with Mathematical Language Routine 5, in which the question stem is tentatively withheld in order to focus on the comprehension of what is happening in the text.

Example 2 - Values/Units Chart

Students use text-annotation to make sense of mathematical text using a two-column graphic organizer.

1. On the first read, students read through mathematical text and underline any words or phrases that represent a known or unknown value or amount. They list these numbers, unknowns, and variables in the left column of their graphic organizer (Values).
2. After the second read, in the right column (Units), students write the meaning of the value in context.
3. After the third read, students work in pairs to create mathematical expressions using only the right column. If they get stuck, encourage them to help press each other to make their right column descriptions more specific.

Sample: *It costs $3 per person to go to the Zoo. Alexandra's family has a coupon for a $5 discount. There are p people in Alexandra's family. Write an expression for how much it would cost for them to go to the zoo.*

Value (numerical or unknown)	*Units (reference to context)*
3	*$ per person to go to zoo*
5	*$ discounted from cost*
p	*number of people in family*
C	*cost for family to go to zoo*

*cost for family to go to zoo is ($ per person to go to zoo) * (number of people in family) - ($ discount)*
*C = 3 * p - 5*
C = 3p - 5

Example 3 - SFUSD Method (adapted from http://www.sfusdmath.org/3-read-protocol.html)
The Three Read Protocol uses the *problem stem* of a word problem. This is essentially the word problem without the question at the end. The purpose of presenting the problem stem alone is to have students focus on the contextual and mathematical information before dealing with any question that is involved. This gives students the freedom to create their own questions for a given scenario, which is an excellent skill to develop both in math and in reading in general. It is important that the teacher choose the problem carefully and anticipate potential linguistic and mathematical roadblocks the students may encounter.

- First Read - *What is this situation about?*
    - Teacher reads the problem stem orally.
    - Students turn-and-Talk to discuss what the problem is about
    - Teacher calls on students to share what the problem is about.

- Second Read - *What are the quantities in the situation?*
    - Class does choral read of the problem stem.
    - Students turn-and-talk to discuss quantities (and their units) in the problem. Explicit and implied quantities (and their units).
    - Teachers calls on students to name quantities. Teacher records these quantities and units on the left side of a poster. Example: “25 cats”, in which *25* is the quantity and *cats* is the units.

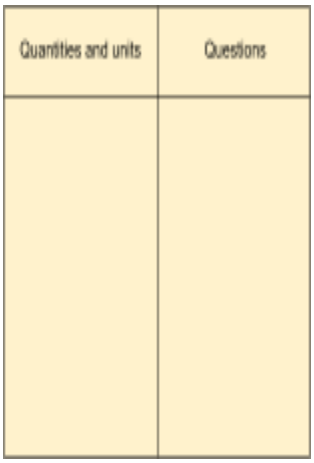
Quantities and units	Questions

- Third Read - *What are possible mathematical questions we can ask? (In Kindergarten, we ask, “What do you wonder about this story?”)*
    - Students read the problem stem with partners or as whole class.
    - Students turn-and-talk to discuss mathematical questions that we might ask about this problem stem.
    - Teacher calls on students to share possible questions that can be asked with this problem stem. Teacher records these questions on the right side of the poster that was used during the Second Read.
    - Teacher choose the question(s) that the class will solve. If the desired question was not shared by students, then the teacher writes the question that students will work on.

Students work in collaborative groups on the problem.
Students work in groups to solve a question based on the problem stem. The teacher may assign a specific question for all groups to answer, or groups may choose a question from the list asked by the class. If groups are asked to choose their own questions, it is important that the teacher circulate and clarify expectations for the work. This can be an opportunity to differentiate the math work because the range of possible questions to a problem stem is broad.

Three Read Protocol Cheat Sheet (SFUSD Method)

#	Who reads	Student prompt	Reporting/Recording
Pre-read	N/A	*Look at the words in this story. Are there any words you can't read or don't know what the word means?*	● Students report orally ● Teacher clarifies vocabulary ● Teacher does NOT record anything
Read 1	● Teacher reads the problem stem ● Students follow with their eyes	*What is this story about?* ● Students discuss in pairs	● Students report orally ● Teacher does NOT record anything
Read 2	● Students do choral read ● Teacher walks among students on left side of the classroom, listening to readers	*What are the quantities in this story?* ● Students discuss in pairs	● Students report orally ● Teacher records quantities on left column of t-chart
Read 3	● Students do choral read ● Teacher walks among students on right side of the classroom, listening to readers	*What are possible mathematical questions we can ask? (In Kindergarten, we ask, "What do you wonder about this story?")* ● Students discuss in pairs	● Students report orally ● Teacher records questions on the right column of t-chart



Students now work on the problem: first by themselves, then with a partner.
After the 3 Reads, the teacher might continue the lesson using the 5 Practices protocol.

Three Read Protocol Reflection Tool (adapted from Scott Borba)

Teacher:		Grade:	
Observer:		Problem Stem:	

Goal	Observed	Evidence
Preparation:		
● Problem stem is appropriate for grade and time of year	☐ Yes ☐ No	
● Problem stem is sufficiently interesting as a story	☐ Yes ☐ No	
● Problem stem has quantities, both explicit and implicit	☐ Yes ☐ No	
● Language of problem stem is accessible to ELLs and students from diverse backgrounds allowing them to focus on mathematical structures	☐ Yes ☐ No	
● Appropriate manipulatives will be used to support student learning	☐ Yes ☐ No	
1st Read:		
● Teacher provides visual poster	☐ Yes ☐ No	
● Teacher orally reads problem stem	☐ Yes ☐ No	
● Students are sitting in precision partners	☐ Yes ☐ No	
● Students are actively listening	☐ Yes ☐ No	
● Students visualize the story	☐ Yes ☐ No	
● Students share what they visualize with partner	☐ Yes ☐ No	
● Students can clearly articulate what they remember of the problem stem	☐ Yes ☐ No	
2nd Read:		
● Teacher appropriately displays problem stem	☐ Yes ☐ No	
● Teacher leads students in choral or partner read	☐ Yes ☐ No	
● Teacher leads discussion of quantities and units	☐ Yes ☐ No	
● Students share quantities and units they identify with partner	☐ Yes ☐ No	
● Students share quantities and units they identify with class	☐ Yes ☐ No	
● Students identify the difference between implicit and explicit quantities	☐ Yes ☐ No	
3rd Read:		
● Teacher asks partners to read with specific goal(s)	☐ Yes ☐ No	
● Teacher leads discussion of potential questions	☐ Yes ☐ No	
● Teacher clarifies language as needed	☐ Yes ☐ No	
● Students read one (or more) time(s) with partner	☐ Yes ☐ No	
● Students brainstorm several questions that could be asked using problem stem with partner	☐ Yes ☐ No	
● Students share questions	☐ Yes ☐ No	
English Learner Supports		
● Teacher provides visual representations of quantities	☐ Yes ☐ No	
● Teacher provides appropriate sentence frames	☐ Yes ☐ No	
● Students use complete sentences with academic language in pairs	☐ Yes ☐ No	
● Students use complete sentences with academic language when sharing out	☐ Yes ☐ No	

Feedback:

California ELD Standards: *Planning and Reflection*

Part 1: Interacting in Meaningful Ways						
Collaborative	1. **Exchanging information and ideas** with others through oral **collaborative discussions** on a range of social and academic topics					
	2. **Interacting** with others in written English in various communicative forms					
	3. **Offering and justifying opinions, negotiating** with and persuading others in **communicative exchanges**					
	4. **Adapting language choices** to various contexts (based on task, purpose, audience, and text type)					
Interpretive	5. **Listening actively** to spoken English in a range of **social and academic** contexts					
	6. **Reading closely literary and informational texts** and viewing multimedia **to determine how meaning is conveyed** explicitly and implicitly through language					
	7. **Evaluating how well writers and speakers use language** to support ideas and arguments with details or evidence depending on modality, text type, purpose, audience, topic, and content area					
	8. **Analyzing how writers and speakers use vocabulary and other language resources** for specific purposes (to explain, persuade, entertain, etc.) depending on modality, purpose, audience, etc.					
Productive	9. **Expressing information and ideas** in formal oral presentations on academic topics					
	10. **Writing literary and informational texts** to present, describe, and explain ideas and information, using appropriate technology					
	11. Justifying own arguments and evaluating others' arguments in writing					
	12. **Selecting and applying varied and precise vocabulary** and language structures to effectively convey ideas					
Part 2: Learning About How English Works						
Understanding Cohesive Texts						
	1. Understanding text structure					
	2. Understanding cohesion					
Expanding and Enriching Ideas						
	3. Using verbs and verb phrases					
	4. Using nouns and noun phrases					
	5. Modifying to add details					
Connecting and Condensing Ideas						
	6. Connecting ideas					
	7. Condensing ideas					
Part 3: Using Foundational Literacy Skills						
Using Foundational Literacy Skills						
	• Native language and literacy • Similarities/differences between native language and English					