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## APPENDIX A: Teacher Challenges Tool

Below is a list of challenges that teachers have reported facing when trying to implement ambitious teaching practices. Review the 19 challenges listed and identify up to 5 challenges that you struggle with. For each identified challenge briefly describe how the challenge plays out in your classroom.		
CHALLENGES	DESCRIPTION	THE CHALLENGE IN MY CLASSROOM
1. Identifying learning goals	Goal needs to focus on what students will learn as a result of engaging in the task, not on what students will do. Clarity on goals sets the stage for everything else!	
2. Identifying a doing-mathematics task	While doing-mathematics tasks provide the greatest opportunities for student learning, they are not readily available in some textbooks. Teachers may need to adapt an existing task, find a task in another resource, or create a task.	
3. Ensuring alignment between task and goals	Even with learning goals specified, teachers may select a task that does not allow students to make progress on those particular goals.	
4. Launching a task to ensure student access	Teachers need to provide access to the context and the mathematics in the launch but not so much that the mathematical demands are reduced and key ideas are given away.	
5. Moving beyond the way you solve a problem	Teachers often feel limited by their own experience. They know how to solve a task but may not have access to the array of strategies that students are likely to use.	
6. Being prepared to help students who cannot get started on a task	Teachers need to be prepared to provide support to students who do not know how to begin work on the task so that they can make progress without being told exactly what to do and how.	
7. Creating questions that move students toward the mathematical goals	The questions teachers ask need to be driven by the mathematical goals of the lesson. The focus needs to be on ensuring that students understand the key mathematical ideas, not just on producing a solution to the task.	
<b>GOALS AND TASKS</b>		
<b>ANTICIPATING</b>		

(Continued)

APPENDIX A (Continued)

CHALLENGES	DESCRIPTION	THE CHALLENGE IN MY CLASSROOM
8. Trying to understand what students are thinking	Students do not always articulate their thinking clearly. It can be quite demanding for teachers, in the moment, to figure out what a student means or is trying to say. This requires teachers to listen carefully to what students are saying and to ask questions that help them better explain what they are thinking.	
9. Keeping track of group progress—which groups you visited and what you left them to work on	As teachers are running from group to group, providing support, they need to be able to keep track of what each group is doing and what they left students to work on. Also, it is important for a teacher to return to a group in order to determine whether the advancing question given to them helped them make progress.	
10. Involving all members of a group	All individuals in the group need to be challenged to answer assessing and advancing questions. For individuals to benefit from the thinking of their peers, they need to be held accountable for listening to and adding on, repeating and summarizing what others are saying.	
11. Selecting only solutions that are most relevant to learning goals	Teachers need to select a limited number of solutions that will help achieve the mathematical goals of the lesson. Sharing solutions that are not directly relevant can take a discussion off track, and sharing too many solutions (even if they are relevant) can lead to student disengagement.	
12. Expanding beyond the usual student presenters	Teachers often select students who are articulate and on whom they can count for a coherent explanation. Teachers need to look for opportunities to position each and every student as a presenter and help students develop their ability to explain their thinking.	
13. Deciding what work to share when the majority of students were not able to solve the task and your initial goal no longer seems obtainable	Teachers may on occasion find that the task was too challenging for most students and that they were not able to engage as intended. This situation requires the teacher to modify her initial plan and determine how to focus the discussion so students can make progress.	
14. Moving forward when a key strategy is not produced by students	In planning the lesson, a teacher may determine that a particular strategy is critical to accomplishing the lesson goals. If the success of a lesson hinges on the availability of a particular strategy, then the teacher needs to be prepared to introduce the strategy through some means.	
15. Determining how to sequence incorrect and/or incomplete solutions	Teachers often choose not to share work that is not complete and correct for fear that students will remember incorrect methods. Sharing solutions that highlight key errors in a domain can provide all students with an opportunity to analyze why a particular approach does not work. Sharing incomplete or partial solutions can provide all students with the opportunity to consider how such work can be connected to more robust solutions.	
<b>SELECTING &amp; SEQUENCING</b>		
<b>MONITORING</b>		

CHALLENGES	DESCRIPTION	THE CHALLENGE IN MY CLASSROOM
16. Keeping the entire class engaged and accountable during individual presentations	Often, the sharing of solutions turns into a show and tell or a dialogue between the teacher and the presenter. The rest of the class needs to be held accountable for understanding and making sense of the solutions that are presented.	
17. Ensuring key mathematical ideas are made public and remain the focus	It is possible to have students share and discuss a lot of interesting solutions and never get to the point of the lesson. It is critical that the key mathematical ideas that are being targeted in the lesson are explicitly discussed.	
18. Making sure that you do not take over the discussion and do the explaining	As students are presenting their solutions, the teacher needs to ask questions that engage the presenters and the rest of the class in explaining and making sense of the solutions. There is a temptation for the teacher to take over and tell the students what they need to know. When this happens, opportunities for learning are diminished. Remember whoever is doing the talking is doing the thinking!	
19. Running out of time	Teachers may not have enough time to conduct the whole class discussion the way they had planned it. In such cases it is important to come up with a Plan B that provides some closure to the lesson but does not turn into telling.	

**CONNECTING**

Source: From *The 5 Practices in Practice: Successfully Orchestrating Mathematics Discussions in Your Middle School Classroom* by M. S. Smith and M. G. Sherin, 2019, Corwin.