

# Selecting and Sequencing Student Solutions

1 MATTHEW HARMON: One benefit of selecting and sequencing is just to be able to  
2 orchestrate progression of conceptual depth that hopefully catches  
3 students in a large net at first, and then maybe moves them towards  
4 just being able to examine what they initially knew and trying to  
5 see it through a different lens that might benefit them in future  
6 tasks.

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8 PEG SMITH: Selecting is the practice of determining which solution strategies the  
9 teacher wants to have shared during the whole class discussion. In  
10 order to make the selections, the teacher needs to review the data  
11 they've collected on their monitoring tool and decide which of the  
12 solutions, and ultimately in what order, would best help the students  
13 access and make sense of the mathematical ideas that she's targeting  
14 in the lesson. Selecting can be very challenging, particularly if you  
15 are not clear on what it is you're trying to accomplish  
16 mathematically. So selecting must be done in light of the  
17 mathematical learning goals that you've articulated for the particular  
18 lesson. So it's not about letting 1,000 flowers bloom and letting  
19 every student share what they've done. It's about trying to decide  
20 which solutions are going to allow you to make the mathematics that  
21 you want to put on the table visible for discussion. Sequencing is  
22 really about the order in which you're going to arrange the solutions  
23 that are going to be discussed, such that the first solution that gets  
24 talked about is one that every student in the class can access. It may  
25 be a solution that uses some sort of a concrete model or  
26 representation that makes the mathematical idea clear. And it may  
27 then build up to a more abstract or symbolic representation so that  
28 what you're doing is you're taking students on a journey. You're  
29 beginning with something that everyone will relate to. And then you  
30 may be moving to another solution that is slightly more complicated  
31 or more abstract. And through this process what you're doing is  
32 you're developing a mathematical storyline. There is something  
33 specific that you want students to learn, and every solution that you  
34 have discussed provides some piece of information that helps you  
35 get to the end game. The sequence needs to build that understanding  
36 so that every piece of work that's examined adds to the  
37 understanding in some unique way. If a piece of work isn't  
38 contributing something different, then there's probably no reason to  
39 talk about it. So I think one of the challenges is being clear about  
40 what you're trying to accomplish, understanding the mathematics  
41 well enough to see how one piece, one solution strategy fits with the  
42 next.

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44 CORI MORAN: So the benefit is really making sure that you get to those end goals. I  
45 think in the past, I would have classes where the goals were started  
46 in the beginning and maybe not referenced throughout the lesson.

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47 And by selecting and sequencing, I can make sure that those goals  
48 are really highlighted in a way that I really can create a story for the  
49 students.

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51 PEG SMITH: One challenge that teachers often face in selecting and sequencing is  
52 when you should feature a misconception. So the first thing to think  
53 about is that every error students make may not be worthy of having  
54 a class discussion about it. But when a student has a missing piece  
55 conceptually, and multiple students in the class hold the same  
56 misconception, then it's really important to have a public discussion  
57 about it so that students can come to understand not just how to get  
58 the right answer, but why it doesn't make sense to do it this way.  
59 Another thing to consider is who will be the presenter. And this is an  
60 opportunity for a teacher to really consider which student who  
61 produced a particular solution has not had time recently to be seen  
62 as publicly competent as a mathematical doer. In this sense,  
63 selection can be an issue of equity, making sure that over time each  
64 and every student has an opportunity to demonstrate competence in  
65 a public setting of the classroom.