

STUDENT RESPONSE PLANNING TOOL

Anticipate Student Responses:

- Do the math. Try to anticipate student responses. With colleagues solve the problem as many ways as you can. Use student responses from previous years. If the task is from published materials, include possible responses. You might also consider research on student learning of the mathematical ideas embedded in the task and possible student strategies.
- Write anticipated student responses on the Sharing Tool. Leave a few boxes blank for unanticipated responses. Be sure to include solutions that are crucial to helping students understand the math concept including common misunderstandings and correct solutions at different complexity levels. For each student response decide what key math idea you wish to emphasize and write it on the plan.

Decide on the rationale for sharing student responses:

Decide what your purpose is for sharing student work. What math concept do you hope to teach and/or deepen student understanding of? Some possible rationales:

- Correct common misconceptions – comparing correct and incorrect solutions, looking for similarities, differences, and contradictions
- Communication – restating others' thinking, showing work or methods to others, questioning to clarify, making observations and connections
- Representation – variety of ways to illustrate a solution (tables, charts, graphs, diagrams, equations)
- Strategies – focus on variety of strategies to solve the problem
- Justifying solutions – explaining why using mathematical reasoning; challenging or defending solutions using mathematical reasoning
- Generalizations – use mathematical relationships to make predictions in the general case or in different context; explain using mathematical language

Plan the order and focus of individual student presentations:

General tips for ordering presentations:

- Have a strategy used by the majority presented before one that only a few students used
- Start with more concrete solutions that use manipulatives or drawings and then move to more abstract strategies that use words or equations. Showing the most complex plan first can discourage students with simpler approaches.
- Have contrasting or related strategies presented right after one another to make it easier to compare
- Try to have student presentations build on each other to develop the lesson's mathematical concept

The rationale you chose will dictate the order of student presentations. If you chose correcting common misconceptions, you'll want to have contrasting explanations side by side so students can easily compare them and discuss similarities and differences. If your focus is on communication or representation, you might decide to mix it up and have presentations in no particular order as the focus is on the variety of ways to communicate or represent an idea. Typically with a strategy focus, you'll want to have student presentations move from simple to more complex. For justifying rationale, you might want to pair contrasting solutions and have students challenge each other and defend their own solutions using mathematical reasoning. If your focus is generalizations, moving from simpler to complex works well.

Connecting student presentations to math concept:

The teacher's role during student presentations is to engage students in analyzing and comparing ideas that are presented and in making judgments about the mathematical consequences of the different approaches. Try to get students to talk to each other about their thinking, to look for patterns, to verbalize generalizations, and make predictions using mathematical language. If students do not discuss the ideas you wish to bring out, take the role of questioner and insert ideas that move the discussion towards the mathematical goal of the lesson.