Appendix A: Planning Template for Open Strategy Sharing Discussion

Open Strategy Sharing		
Problem to pose		
Why I chose this problem		
Opening the lesson		
How might my students solve this problem?	**Who solved it this way?**	**Who should share today?**
Notes to myself about what I'm looking for		
Other strategies that emerged during the lesson		
Closing the lesson		

4th Grade

Appendix A: Planning Template for Open Strategy Sharing Discussion

Open Strategy Sharing		
Problem to pose 4 x 23		
Why I chose this problem	Multi-digit multiplication problem with multiple solution paths; most students have single digit multiplication fluency	
Opening the lesson	Review hands signals, rehearse turn-and-talk "Today we are solving a multiplication problem mentally."	
How might my students solve this problem?	**Who solved it this way?**	**Who should share today?**
Break apart by place value & distribute 4 x 3 = 12, 4 x 20 = 80, 12 + 80 = 92		
Use a friendly number and compensate 4 x 25 = 100, 4 x 2 = 8, 100-8=92		
Standard algorithm		
Notes to myself about what I'm looking for What strategies do students have for solving 4 x 23? Will any students use visual models?		
Other strategies that emerged during the lesson		
Repeated addition 23+23+23+23		
Closing the lesson	Reinforce that there are different ways to solve a multi-digit multiplication problem.	

Appendix B: Planning Template for Compare and Connect Discussion

Compare and Connect	
Strategy 1	**Strategy 2**
What connections are important for students to notice?	
Supporting Students' Thinking	
What students might notice	**How I might respond to support their thinking**
What is the key mathematical idea I want to highlight?	

2nd grade

Appendix B: Planning Template for Compare and Connect Discussion

Compare and Connect	
Strategy 1	**Strategy 2**
Count on 6+5+4 "siiiiiiix, 7, 8, 9, 10, 11" 11+4=15 "elevennnnnnn, 12, 13, 14, 15"	Make a 10 6+5+4 6+4=10 10+5=15
What connections are important for students to notice? You can use counting on twice to get to the answer, or you can easily make a ten with the 6 and 4 and then add 5 to get 15.	
Supporting Students' Thinking	
What students might notice	**How I might respond to support their thinking**
Both strategies gave us the answer 15	How did the strategy help get to 15?
With both strategies, you make a new problem. Counting on gives you 11+4 and making a ten gives you 10+5	Which "new problem" is easier to add?
Making a ten in this problem is easy because you can just add the 6 and 4 first.	Why did ____ add the 6 and 4 first?
What is the key mathematical idea I want to highlight? When you have a problem with three addends and two of them are partners to 10, using the make a ten strategy is efficient.	

Appendix E: Planning Template for Define and Clarify Discussion

Define and Clarify
What new tool, representation, symbol, or vocabulary are we targeting in our discussion? Is this new to the students or are they using it in a new way?
What problem or task are we working on? How will I support meaning making? What partial understandings might arise?

Appendix E: Planning Template for Define and Clarify Discussion

Define and Clarify

What new tool, representation, symbol, or vocabulary are we targeting in our discussion? Is this new to the students or are they using it in a new way?

Representation: Area model

Intent: Clarify how an area model can show partial products when solving a multi-digit multiplication problem.

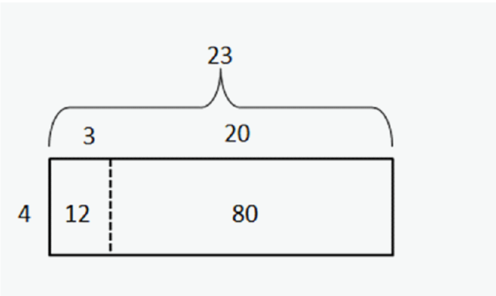
Students have been using the area model as a strategy for solving mult-digit multiplicaton problems.

What problem or task are we working on? How will I support meaning making? What partial understandings might arise?

4 x 23

How can we use an area model to show partial products?

23 x 4
3 x 4 = 12
20 x 4 = 80
12 + 80 = 92



Support making meaning of where factors and products are represented in the area model.
What does an area model look like? Where do the numbers go? Where do the partial products go? What is the length of this side? Where is the 12? Where is the 80? How can we find our total product? Where is the 92?