**My Stand Alone Instructional Resource (StAIR) covers the subject of Multiplication. Multiplication is a new standard that is introduced to students in second and third grade. My StAIR is designed to build on what the students learned in their last marking period of second grade, which are the following standards:**

**2nd grade standard:**[**N.MR.02.13**](http://www.eup.k12.mi.us/608973121310511/blank/browse.asp?a=383&BMDRN=2000&BCOB=0&c=55519) Understand multiplication as the result of counting the total number of objects in a set of equal groups, e.g., 3 x 5 gives the number of objects in 3 groups of 5 objects, or 3 x 5 = 5 + 5 + 5 = 15.
[**N.MR.02.14**](http://www.eup.k12.mi.us/608973121310511/blank/browse.asp?a=383&BMDRN=2000&BCOB=0&c=55519) Represent multiplication using area and array models.
[**N.MR.02.16**](http://www.eup.k12.mi.us/608973121310511/blank/browse.asp?a=383&BMDRN=2000&BCOB=0&c=55519)    Given a situation involving groups of equal size or of sharing equally, represent with objects, words, and symbols; solve.  [EXT]

Reviewing will help the students to remember what they learned. This will hopefully jar some memories and help them to build on their experiences from second grade. The following standard is the standard that this StAIR really focuses on. It’s helpful to the students to always ask themselves the following questions and it helps them to draw out the problem, as a strategy, if they get stuck when trying to answer the problem.

[**N.MR.03.10**](http://www.eup.k12.mi.us/608973121310511/blank/browse.asp?a=383&BMDRN=2000&BCOB=0&c=55515)     Recognize situations that can be solved using multiplication and division including finding "How many groups?" and "How many in a group?" and write mathematical statements for those situation. [CORE]

**The following standards are only introduced to the students. Throughout this StAIR they are working with different multiplication problems as well as products to help them down the road with finding the products fluently. The problems that are unsolved for example 3 x 5=?, are what I considered beginners open multiplication sentences. Seeing the problems in this manner will help the students to transition to the open sentences that are missing numbers other than the product.**

[**N.FL.03.11**](http://www.eup.k12.mi.us/608973121310511/blank/browse.asp?a=383&BMDRN=2000&BCOB=0&c=55515)     Find products fluently up to 10 x 10; find related quotients using multiplication and division relationships. [CORE]
[**N.MR.03.12**](http://www.eup.k12.mi.us/608973121310511/blank/browse.asp?a=383&BMDRN=2000&BCOB=0&c=55515)Find solutions to open sentences such as 7 x ⁭ = 42 or 12 ÷ ⁭ = 4, using inverse relationship between multiplication and division. [FUT]

The instructional strategies that I employed were many. I think the best and most prevalent, would be focusing on the essentials. The entire theme of this StAIR is for the students to learn the standard pertaining to “how many groups” and “how many in each group”. The StAIR’s teacher support slides are persistently telling the students to remember “how many groups” and “how many in each group” or something similar to that effect. I have provided a slide for an example:

 The second instructional strategy that I engaged the students in was trying to have them use their prior knowledge and the build upon it. A standard from second grade is for the students understand that multiplication is repeated addition. I start the StAIR having the students read through what repeated addition, hoping that they are remembering second grade. I also build upon their prior knowledge by giving them a multiplication problem dealing with twos, I then give them the twos hint. When multiplying by two you just double the number. 2 x 3 is the same as 3 + 3 and is the same as doubling the 3. I have provided that slide as an example:

 My StAIR is designed so that students wouldn’t be able to just click the buttons without reading it through the presentation. In the beginning of the presentation on slide 9 there is a button that is a backward button, if the student is just clicking and not reading this button will take them back to slide 4. This button is designed to head back if the students are in need of a review of repeating addition.

 Again on slide 36 the students don’t have just a button to push, they have to read the slide. The slide is giving them a hint on a problem that they have gotten wrong. It then asks them if they understand, if they do they are to click in on a certain word. If they do not understand then they are supposed to click a different word and it will take them to another slide that offers them a better hint. I don’t want my students to just click their way through this presentation, I deliberately put some buttons in that would repeat information or take them to more slides for more hints. It stops them from just going through the slideshow, but it also gives students who are struggling more opportunities for advancement through hints. I have provided slide 36:

 I believe that this project was very effective and met my goals. I ‘stole’ pictures and questions that my students always seem to have a hard time with from MEAP released items. I love that I was able to incorporate those questions into my StAIR. I had my own niece go through my StAIR for me. She is very good at math, but she is going into third grade this year. I figured that that sort of evened the field. I would not give this StAIR to my students first coming into third grade. This would probably be given to them a little later in the class, it would depend on when we started to cover the concept of multiplication and/or when I would have struggling students with the concept of multiplication it would also depend on their experience with PowerPoint. My niece did very well with this StAIR, she got every answer correct. While I was sitting with her I asked her a simple question that I would ask all of my students and she was unable to answer the question. It was ‘how do you know that is the answer?’. Even though she was able to go through the StAIR successfully, she was unable to answer a third grade question that I commonly use in my classroom. I also had a student from last year go through my StAIR, he is currently attending summer school. I told him that I needed his help and he told me when I had mistakes on my page ☺ I asked him if he thought my students next year would be able to understand this and he agreed. He even got one wrong and when I asked him why he told me that he didn’t read through the slide carefully enough. That made me happy, it goes back to the fact that my students are going to have to take their time and read through the presentation for it to help achieve success.