**Solar Lessonplan**

**Grade** level: 5th

**Subjec**t: Math, Multiplication

**Materials needed**: Pencil, paper, Math book, Smart Board.

**Standards:**

5.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm.

**objectives:**

Students will distinguish the difference between the standard algorithm and the array algorithm.

Students will demonstrate their understanding of the Array algorithms by solving equations created by the teacher.

Students will break down the array algorithm step by step.

**Learning Activates:**

For a warm up activity the students will focus on Calendar math. It is the first of the month and each month starts with a different shape. This months shapes revolve around triangles (isosceles, equilateral, scalene, Right). The students will do Calendar math everyday of October. Next they will use the Promethean clickers for ten minutes to complete a warm up multiplication activity. Then, right before our lesson, the students will be showed a series of dots for 3 seconds, and be asked to find out how many dots there were by using their preferred algorithm.

To start the lesson on arrays, I will have one example on the smart board of 35x28. I will ask the students to solve it using the algorithm they are comfortable with. The students have been working on prime factorization the last couple of days. I will explain to them the array model is similar to factoring, by how we take about the first number and second number to multiple them to get a product.

 Next we will break apart 35x28 using the array algorithm.

First break apart 35x28 into 35x20 and 35x8 this is where we take the tenths x tenths) and the (Tenths x the ones)

35x20=700 35x8=280 these will then be added together

 700

+ 280

 980

35X28 can be further broken down into friendly terms though

30x20=600 (Tenths)

30x8=240 (Tens x ones)

20x5=100 (tens x ones)

5x8=40 (ones x ones)

Add all of these totals together for a grand total of 980. The example of how to add these numbers into the squares and rectangles will be attached. There will be one more example to use. After this I will do as many homework problems with the students in class what ever we do not finish will be sent home for homework.

Next I will assign them a word problem of which we will dive into together.

It’s field day and all of the teams need to line up in the field to make a huge rectangle. There are 32 teams, with 15 students in each team. The problem is to figure out how many students there are on all of the teams.

We will start with 32x10. Who can explain what 32x10 in terms of the teams? What part of the problems have we solved? What else do we need to do? Where do you see the part we’ve solved in the array? What is this other part of the array?

**Assessment:** The students will be assessed with a homework assignment that they will be assigned (Page 29) out of their book. We will be going over 2-3 problems depending on the amount of time we have. What ever we do not finish will be assigned for homework.

**Reflection:** This lesson went well overall, I struggled with managing some of the students who were getting off task, because they either didn’t get it, or needed more reinforcement of the activity. I need to work on my visual and nonvisual techniques of addressing issues in the classroom. I also missed a teachable moment; I messed up on one equation and could have brought it to the student’s attention. I will need to practice on my cues and be more aware of what I am teaching next time.