**Solar Lesson plan**

**Grade** level: 5th

**Subjec**t: Math, Orders of Operation (Pemdas)

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

**Standards:**

**Math**

CCSS.MATH.CONTENT.5.OA.A.1-Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

[CCSS.MATH.CONTENT.5.NBT.B.6](http://www.corestandards.org/Math/Content/5/NBT/B/6/)-Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

**Music**

4.8.2  Understand the interrelationship of music and other disciplines.

**Objectives:**

Students will solve multistep equations using order of operations.

Students will recite the acronym PEMDAS.

**Learning Activates:**

**To open up this lesson I will write**

4+3 x 6 =

I will ask the students to solve this equation. If one of the students understands Order of Operations I will give the class another example and have them work it out together. If students do not know how to work through this problem I will explain how we are required to multiply first, and then do the addition next because of order of operations. I will supply the students with an order of operations table with steps of how to successfully complete multistep equations.

1. Perform operations within grouping symbols first.
2. Multiple and divide in order from left to right.
3. Add and subtract in order from left to right.

Next I will explain to students are there are symbols in math that group numbers together such as parentheses. Since the above equation had no parentheses we will have to figure out which to do first, and in this case it was multiplication and division.

Next I will give them another example.

20 - 5 x 3= 5

Next I will have the students examine a word problem.

Tamira backed brownies for a bake sale. She put 6 brownies on each plate. She made 4 plates of Peanut brownies and 3 plates of Double chocolate brownies. How many brownies did she make?

I will ask the students to try and solve this on their own. I will give them 5 minutes to do this.

The equation should look like this (4+3) x 6 = 42

I will have the students first add, and ask them why we add first (Parentheses) then we multiply to get the answer of 42.

Next we will work together on an even more difficult problem.

2 x [(3+7)-(2+4)]=

I will ask the students to try and solve this equation, after antique response time I will introduce PEMDAS to them.

(Parentheses, Exponents, Multiplication, Division, Addition, Subtraction.)

This equation has parentheses inside brackets. If there are always outside the Parentheses. And if there are braces they are always outside brackets. You always do the operations inside the parentheses first then brackets, and then braces.

{[ ( ) ]} is what it would look like, in order of operations.

You go from inside to the outside. After this, depending on how the students are doing as a whole I will show them the Pemdas Shuffle, and have them dance with it.

PEMDAS shuffle.

<https://www.youtube.com/watch?v=EfgtWthLvk4>

It’s a 3-minute song, I will show the students the dance moves that go with the song before I show them the video twice, and then have them listen to the song and dance with it. This will be a good way to get the students brains moving and staying active.

From here I will help the students solve the previous equation on the board if they are struggling with it.

2 x [(3+7) – (2=4)]

2 x (10-6)

2 x 4 = 8

It’s about to get a little more difficult here.

4 x {8 – [ (3+90 ÷ 2 ]} +3=

We will work this one out together as a class. I will class on students to participate.

Next I will have the students work backwards

14-3 +2 ÷ 3 =3

I will ask them to insert parentheses, brackets, and maybe even braces to make this equation true. They can work with their partner. Remember, put the operations you want done first in parentheses, the ones you want done next in brackets, then in braces, and finally the ones you want done last outside all of the grouping.

Homework on pages 35 a and 35 B and c2.

**Assessment:** For an assessment I will have a worksheet ready for the students to complete, I will pick 3 equations for them to complete before they leave for the day, and have them fill it out. I will also ask them to define what PEMDAS means on the top of that worksheet.

**Reflection:**

This lesson went excellent over all, one thing I need to work on is assessing students understanding of a subject on the go, not just by asking students if they understand. That took a lot of time and created a lot of unneeded chatter between the students. I improved on my classroom management techniques, I did not address every issue just the issues that needed to be addressed. I had a point in the lesson where some students needed a more difficult problem, while other ones needed more help, so I created a problem for both students, I worked through the easier one so that group could understand the concept better.

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