**PEMDAS Posters Lesson Plan**

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| **Name:** | | **311** | | |  | **Course:** | | Math | | |  | **Grade:** | 6th |
| **Unit:** | | Variables, Expressions & Properties | | | | | | | | | | | |
| **Big Idea:** | | Properties of Operations | | | | | | | | | | | |
| **Subconcept:** | | There is an agreed upon order in which operations are carried out in a numerical expressions. | | | | | | | | | | | |
| **Literacy Strategy(s):** | | | Word Wall, Small & Large Group Discussion, Read a Textbook, Note-taking | | | | | | | | | | |
| **Lesson:** | | PEMDAS Posters | | | | |  | | **Date Taught:** | January 11, 2010 | | | |
| **Learning Objective(s):** | | | | | | | | | | | | | |
|  | Students will be able to | | | Remember and appropriately utilize the Order of Operations. | | | | | | | | | |
|  | Students will be able to | | |  | | | | | | | | | |
|  | Students will be able to | | |  | | | | | | | | | |
| **Idaho Standards (or National Standards if no Idaho Standards exist):** | | | | | | | | | | | | | |
| 6.M.1.2.3 | | | | | | | | | | | | | |

**Detailed Description of Lesson:** I placed a problem on the overhead for students to complete (6 x7 + 12/3). After a minute or two, I asked for all the different answers that the kids came up with. Then we discussed how they thought the same numbers and operations could come up with more than one answer. When we finally get through discussions and the kids decide that there should only be one answer, we go over the order of operations for the problem. I place a few more problems on the board and we discover the complete PEMDAS process. I erase the overhead and all the evidence of PEMDAS that we have written down, and then place a few more problems up and ask the kids to complete them with the information that they have discovered. The kids have a hard time remembering what order they are supposed to be completing the operations. It is at this time that I talk about mnemonics and I present Aunt Sally and Purple Elephants. I tell the kids that, while these are great, it works even better if they come up with on e of their own, and then they set to work creating their own PEMDAS saying and make them into posters.

**Handouts:** None

**Student Work:** See attached

**Reflection:** This lesson works well. The kids struggle in the beginning in the discovery process determining what order the operations occur in, especially when I throw in the exponents, but they really enjoy the payoff of making up their own sayings and creating posters! Some of the kids really take their time and make very creative posters; others rush through, not being creative types. **LIMSST Project Literacy Lesson Reflection Form**

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| --- | --- | --- | --- | --- |
| **Name:** | **311** |  | **Date lesson was taught:** | **January11, 2010** |
| **Lesson Title/Topic Areas:** | | | | |
| **PEMDAS Posters** | | | | |

**Literacy Strategies Used:**

(Please discuss what literacy strategies you embedded in this lesson. What were your goals in using these strategies? Be specific and use as much detail as possible.) Word Wall – I put the kid’s posters up on the bulletin board in the room and they review and look at the posters when they go through their assignments, or write “PEMDAS” down on their papers as a reference. Small & Large Group Discussion – the kids work at their tables to complete the posted problems and discover the order items were completed in. Note-taking – they create their own notes with their posters on the Order of Operations.

**Student Response to the Lesson:**

(Was the strategy effective? Were students able to read/write as needed in this lesson? What attitudes were displayed? How did specific

students and/or the class do? How did the literacy strategy aid in developing student understanding of the topic? Cite specific evidence from the samples of student work)

Students enjoy this lesson because they feel like they have really discovered something. (Which they have.) and they also get to make up funny little sayings to go along with it to help vent the frustrations they suffered in getting at the problems.

**Lesson Reflection:**

(What worked well with this lesson? What challenges did you encounter in this lesson? Would you change certain aspects of the lesson or the questions that you asked? How does this influence future lesson planning?)

Oftentimes students will give up before they finally figure out what is happening, but with the table top set up (4 in a group) there are more minds at work and there is more perseverance in attaining the correct answer. I do need to establish some creative guidelines for the posters so that kids can’t cop out of the final step and just throw anything out on their posters.

**Relationship to Previous Instruction:**

(Have you taught this lesson/topic prior to the LIMSST project? If so, how did your teaching of this lesson differ from what you taught before? How did students’ reactions to this lesson differ?)

I have the students make these posters every year, but this year I made them discover the order of operations on their own rather than introducing it to them. It was a lot harder for them and took them some more time, but I think it will stick with them longer this way. ☺