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SOLAR LESSON PLAN *MATH ARRAYS*

Age Level: 3ʳᵈ Grade
Subject(s) Area: Mathematics
Materials Needed: Smart Board, Worksheet, Pencil, Grid Paper, Pennies, Review paper

Standards:

3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, **arrays**, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Objectives:

The students will **solve** word problems using arrays with their graphic organizers with *90% accuracy*.

Learning Activities:

Technology: Smart Board and activity guides on computer.

Required Vocabulary: Array: a display or arrangement of a particular thing.

Opening Element: Pull up photos of different items that are arrays (carton of eggs, windows on skyscrapers, box of chocolates, etc.). Ask students "What is something you notice about these photos?" *Guide them to the concept of straight lines/order/array.*

Reflective Questions: "Where else have you noticed arrays?" "Can anything make an array? Why or why not?"

Instructional Methods:

- The students will start out the initial math time by doing a review of their math facts via graphic organizers the classroom teacher has. They'll be doing this review independently first and then with partners.
- After the review, the students will come to the board and look at the photos that are there and answer the questions listed above.
- Then, the lesson will start on arrays using the models for arrays on the board (this is the same as the papers in front of them).
  - o The instructor will point out that reading an array starts at the left, then goes to the top, so you always read the number of rows before columns.
  - o Then, in order to know how many items are in the array, you just multiply the two numbers. Some examples will be pulled up on the board and the students will be able to practice them and go over it with a partner. Examples of arrays can include:
    - ▪ 3x5
    - ▪ 2x4
    - ▪ 4x3

- 5x1
  - o Students will then receive their pennies and we will make different sized arrays on the sheet of grid paper.
  - o The teacher will check for understanding with a Fist to Five and do one or two (possibly no more) example(s) based on the input from the students.
- Once the lesson has been taught, the students will have a worksheet to do in relation to arrays. Side A is to be done with a partner, Side B is to be done independently.
- Independent Concrete Practice/Application:
  - o I do: The teacher will monitor class understanding and involvement with the lesson on arrays.
  - o We do: The class will participate in the lesson on arrays and will cooperate with their partners to complete the review and worksheet.
  - o You do: The students will independently complete Side B of the worksheet.
- Classroom management/movement: The teacher will call Fist to Five for understanding and will also call the students back to attention using a count down. The student will move locations from their initial review, to the lesson, to getting pennies, to doing the worksheet.
- Differentiation: For the students that are struggling, I will adjust their partners to include the high flyers of the classroom. If students are really grasping the concept, the instructor can give more challenging numbers such as 8x12 arrays.

Wrap-Up: Connect the concept of arrays to everyday objects. Challenge the students with this question: "Can you notice how many everyday objects form arrays?"

Assessment:

Formative: The formative assessment will include Fist to Five, Thumbs up or Down, and the monitoring of the classroom during the examples and the student responses.

Summative: The summative assessment includes Side B of the worksheet. This worksheet is done to see where the students are at with the concept independently.

Reflection:

The students understood this topic very well. The fact that the lesson at the Smart Board was also interactive was very helpful for them because they could see the squares being "filled in". The students clearly understood that you have to go from left to right when working with arrays (at least that's what their classroom teacher wanted them to know). After the initial instruction, the students weren't too crazy on the worksheet, however once I picked some of the students to come up and complete the problem on the Smart Board for the rest of the class to see, they all became excited to work because they wanted to be called up to the Smart Board in order to do the problem in front of the rest of the class. This lesson tied in really well to what they would be learning over the rest of the week, which was area. The students grasped this concept very well and it helped them understand the basic concept of area and what was meant by a square unit.