Lesson Plan #3

2's and 3's as Factors: Commutative Property

Performance Objective: Using commutative property, students will be able to change at least 8 out of 10 multiplications problems into new ones.

Resources or Materials Needed:

- Pencil
- White board
- Dry erase marker
- Template of an array (6 rows of 3)
- 20 red/white counters
- Chromebook
- Login information to FasttMath

Time: 60 minutes

Step 1: Pre-Instructional Activities:

- Using the 20 red/white counters students will work with partners to create an two arrays:

  - 2 rows of 4

  - 4 rows of 2

- Students will discuss with their partners the following questions:

  - How are these arrays similar?

  - How are the arrays different?

- 4-5 students will share out their answers with the class

Step 2: Content Presentation:

- As a class, we will be working on multiplication fact fluency as well as introducing commutative property at the same time.

- Students will begin to count by 2's forwards and backwards up to 20.

- Students will count by 3's forwards and backwards up to 30.

- o The class will do this multiple times until the class starts to get the hang of skipping count by 3's.

- As a class, we will reviews different types of arrays and discuss the following:

  - o What is an array?

  - o What is a column?

  - o How do we find the multiplication sentence for these arrays?

  - o What is the multiplication sentence for this array?

    - ▪ Other arrays will be displayed and the same questions will be asked

  - o Can we solve these with repeated addition?

- Student will get a template that shows an array that has 6 rows of 3.

  - o Cover all rows except one

    - ▪ What is our multiplication sentence?

  - o Cover all rows except two

    - ▪ What is our multiplication sentence?

  - o Cover all rows except three

    - ▪ What is our multiplication sentence?

  - o Cover all rows except four

    - ▪ What is our multiplication sentence?

  - o Now that we have all rows uncovered, what is our multiplication sentence for this array?

- At this point, we will introduce commutative property.

  - o Students will take their template and rotate it to where it now shows 3 rows of 6

    - ▪ Turn and talk with partners

- What changed?

- Did the total amount change?

- What is our multiplication sentence now?

o On students white boards, they will show the first multiplication sentence and the new multiplication sentence.

  ▪ What is similar?

o The teacher will explain that commutative property results in the same total but causes the factors to change positions. Example: 6 rows of 3 turned to 3 rows of 6. Our array changed when we turned it on the side, which resulted in our multiplication sentence to change, but the total did not.

  ▪ Practice commutative property with facts such as 3x4, 5x3, 2x7, 2x5

  ▪ 3-4 students will share out what they realize when it comes to commutative property

    - Student comments can be: "You just switch the factors around but keep the total the same"

Step 3: Learner Participation:

- Students will work on a worksheet that consists of students to draw arrays for multiplication problems and draw the arrays in a different way as well as write a new equation for the different array.

- Students will have access to a program called "FasttMath". Students will begin to start working on fact fluency once a day on this program.

  o One lesson is 10 minutes long

Step 4: Assessment:

Students will be assessed with a handout that shows 10 multiplication equations from which students will be able to use commutative property to change 8 out of the 10 equations into new ones.

Step 5: Follow-Through Activities:

- Students will discuss with their group how commutative property works in multiplication. They will talk about the importance of commutative property and how it relates to multiplication, such as having two of the same factors that can be switched around and still equal the same product.
- Students will use their array city and write the commutative property for each multiplication sentence.

Lesson Plan Summary: In this lesson, the instructions is more teacher directed though students do get time to turn and talk with their partners and discuss questions as a group. During the lesson, students review lesson two content that discusses arrays. Students also review repeated addition by skip counting as well as reviewing arrays and the vocabulary that corresponds. Cognitivism is present in this lesson as students are constantly building upon what they know from repeated addition to skip counting to arrays and now commutative property (Ertmer, P.A., & Newby, T.J., 2013).

Commutative Property Assessment

Name:_____

Directions: Using commutative property, change the multiplication into a new one.

1. 5 x 10	2. 6 x 3	3. 9 x 8	4. 9 x 9	5. 2 x 5
6. 7 x 8	7. 5 x 5	8. 5 x 4	9. 7 x 6	10. 10 x 5

Total Correct:_____/10

Name:_____Answer Key_____

Directions: Using commutative property, change the multiplication into a new one.

1. 5 x 10 10 x 5	2. 6 x 3 3 x 6	3. 9 x 8 8 x 9	4. 9 x 9 9 x 9	5. 2 x 5 5 x 2
6. 7 x 8 8 x 7	7. 5 x 5 5 x 5	8. 5 x 4 4 x 5	9. 7 x 6 6 x 7	10. 10 x 5 5 x 10

Total Correct:_____/10

8+/10=Proficient