Multiplication Properties to 3rd Grade Students

Objective:

- Students will learn and understand the basic properties of multiplication, which help make multiplying numbers easier. By the end of the lesson, they will be able to identify and apply the properties in solving multiplication problems.

1. Introduction to Multiplication Properties

- **What are multiplication properties?**
  - Multiplication properties are rules that make it easier to multiply numbers. These rules work every time, no matter which numbers you're multiplying!

2. The Commutative Property of Multiplication

- **What does it mean?**
  - The commutative property tells us that the order in which we multiply numbers doesn't matter. We'll always get the same result!

  Example:

  - $3 \times 4 = 12$
  - $4 \times 3 = 12$
  - See how we switched the numbers, but the answer stays the same? That's the commutative property!
- **Activity:**
  - Have students pair up and take turns multiplying numbers in different orders. Ask them to try problems like:
    - $5 \times 6 =$ _____
    - $6 \times 5 =$ _____

3. The Associative Property of Multiplication

- **What does it mean?**
  - The associative property tells us that when we multiply three numbers, it doesn't matter how we group them. We'll still get the same answer!

  Example:

  - $(2 \times 3) \times 4 = 6 \times 4 = 24$
  - $2 \times (3 \times 4) = 2 \times 12 = 24$
  - Both ways of grouping give us the same answer!
- **Activity:**
  - Write multiplication problems on the board using parentheses, like:
    - $(4 \times 2) \times 3 =$ _____

        - $4 \times (2 \times 3) =$ _____
    - Have students solve the problems to see how the answer stays the same, no matter how they group the numbers.

4. The Identity Property of Multiplication

- **What does it mean?**
    - The identity property tells us that any number multiplied by 1 stays the same.

  Example:

    - $7 \times 1 = 7$
    - $1 \times 9 = 9$

  Why is it called the "identity" property?

    - Because multiplying by 1 doesn't change the number's "identity." The number stays the same!
- **Activity:**
    - Ask students to solve simple problems like:
        - $8 \times 1 =$ _____
        - $1 \times 5 =$ _____

5. The Zero Property of Multiplication

- **What does it mean?**
    - The zero property tells us that any number multiplied by 0 equals 0.

  Example:

    - $4 \times 0 = 0$
    - $0 \times 9 = 0$

  Why does this happen?

    - Because when you have zero groups of something, you have nothing at all!
- **Activity:**
    - Ask students to solve problems like:
        - $6 \times 0 =$ _____
        - $0 \times 12 =$ _____

6. Practice with All Properties

- **Review all the properties:**
    - **Commutative Property:** The order doesn't matter (e.g., $4 \times 5 = 5 \times 4$).

- **Associative Property:** The grouping doesn't matter (e.g., $(2 \times 3) \times 4 = 2 \times (3 \times 4)$).
- **Identity Property:** Any number times 1 stays the same (e.g., $7 \times 1 = 7$).
- **Zero Property:** Any number times 0 is always 0 (e.g., $8 \times 0 = 0$).

7. Real-World Application of Multiplication Properties

- **Explain:**
  - These properties are useful in real life because they make math easier! For example, if you're multiplying numbers when buying things at the store or organizing objects into groups, knowing these properties can help you do math faster in your head.
- **Example Problem:**
  - "Sally has 3 bags of candy with 4 pieces in each bag. Does it matter if we say 3×4 or 4×3 to find the total? No! The answer will still be 12 pieces of candy."

8. Conclusion

- **Review:**
  - Ask students to explain each multiplication property in their own words.
  - Encourage them to solve a few problems and identify which property is being used.