Mental Multiplication to 3rd Grade Math

1. Introduction to Mental Multiplication

- **Start with a Simple Question:**
  - "How can we quickly find out how many are in several groups without using paper and pencil?"
- **Explain Mental Multiplication:**
  - **Mental Multiplication:** It's when you use your brain to figure out multiplication problems without writing them down. It's like solving problems in your head!

2. Understanding Mental Multiplication

- **Break Down the Problem:**
  - **Example:** To find out how many are in 4 groups of 5, think:
    - How many 5s are in 4 groups?
    - You know 4 times 5 is the same as adding 5 four times.
- **Use Known Facts:**
  - **Example:** If you know that $5 \times 2 = 10$, then 5×4 can be found by doubling 10 (which is 20).

3. Simple Strategies for Mental Multiplication

- **Doubling and Halving:**
  - **Doubling:** If you know $4 \times 3 = 12$, then 8×3 is double that, which is 24.
  - **Halving:** If you know $8 \times 3 = 24$, then 4×3 is half of that, which is 12.
- **Using Arrays:**
  - **Visualize Arrays:** Imagine arranging objects in rows and columns. For example, 3 rows of 4 items each can be quickly figured out by seeing it as 3 groups of 4.
- **Breaking Down Numbers:**
  - **Example:** To solve 6×7, break it down:
    - $6 \times 7 = (6 \times 5) + (6 \times 2)$
    - $6 \times 5 = 30$ and $6 \times 2 = 12$, so $30 + 12 = 42$.

4. Practice Mental Multiplication

- **Start with Simple Facts:**
  - **Examples:**
    - $3 \times 4 =$ ___ (Think: 3 + 3 + 3 + 3)
    - $5 \times 2 =$ ___ (Think: 5 + 5)
- **Use Real-World Examples:**
  - **Example:** You have 6 bags of cookies, and each bag has 4 cookies. How many cookies are there in total?
    - Think: $6 \times 4 = (6 \times 2) + (6 \times 2) = 12 + 12 = 24$.

6. Review and Conclusion

- **Recap:**
  - Summarize how mental multiplication is about using known facts and strategies to quickly solve problems in your head.
- **Practice Problem:**
    - $4 \times 6 =$ ___
    - $7 \times 5 =$ ___