Explaining Multiplying by 9 to 3rd Grade Students

Objective:

- Students will learn how to multiply numbers by 9 using various strategies, including skip counting, patterns, and multiplication facts. By the end of the lesson, they will be able to solve multiplication problems involving the number 9 and apply these skills to real-world scenarios.

1. Introduction to Multiplying by 9

- **Start with a Question:**
  - Ask students, "What happens when we multiply a number by 9?" Let them share their ideas.
- **Explain:**
  - Multiplying by 9 is like adding the number 9 multiple times. For example, 9×3 means adding 9 three times: $9 + 9 + 9 = 27$.

2. Skip Counting by 9

- **Introduction:**
  - Skip counting is a useful way to find the answer when multiplying by 9.
- **Activity:**
  - Practice skip counting by 9 together:
    - Start at 9 and count by 9: 9, 18, 27, 36, 45, 54, 63, 72, 81, 90.
  - **Tip:** Use hand motions or a rhythm to make it fun!

3. Using Patterns to Multiply by 9

- **Introduce the 9s Pattern:**
  - The digits of the results of multiplying 9 by different numbers always add up to 9.

  Examples:

  - $9 \times 2 = 18 \ (1 + 8 = 9)$
  - $9 \times 4 = 36 \ (3 + 6 = 9)$
  - $9 \times 6 = 54 \ (5 + 4 = 9)$

4. Learning the Multiplication Facts for 9

- **Teach the Multiplication Table for 9:**
  - Present the multiplication table for 9:

| 9×1 | 9 | | 9×2 | 18 | | 9×3 | 27 | | 9×4 | 36 | | 9×5 | 45 | | 9×6 | 54 | | 9×7 | 63 | | 9×8 | 72 | | 9×9 | 81 | | 9×10 | 90 |

5. Real-World Application

- **Discuss:**
    - Explain how multiplying by 9 can be useful in everyday situations. For example, counting objects or solving problems related to groups of items.
- **Example Problem 1:**
    - "If you have 9 bags and each bag has 4 apples, how many apples do you have in total?"
    - Solution: $9 \times 4 = 36$ apples.
- **Example Problem 2:**
    - "A toy costs \$9. If you buy 6 toys, how much will it cost in total?"
    - Solution: $9 \times 6 = \$54$.

6. Conclusion

- **Recap:**
    - Review the key points of multiplying by 9, including skip counting, patterns, and multiplication facts.