2nd Grade Math: Making Patterns

Introduction

In this lesson, students will learn about patterns—repeating sequences that can be found in numbers, colors, shapes, and more. Recognizing and creating patterns is a fundamental skill in mathematics that helps students develop logical thinking and problem-solving abilities.

Key Concepts

- **Pattern**: A repeated arrangement of numbers, colors, shapes, or objects.
- **Types of Patterns**: Repeating patterns, growing patterns, and shrinking patterns.

Types of Patterns

1. **Repeating Patterns**:
    - **Definition**: A sequence that repeats the same elements over and over.
    - **Examples**:
        - Color pattern: red, blue, red, blue, red, blue
        - Shape pattern: circle, square, circle, square, circle, square
    - **Activity**: Have students create a repeating pattern using colored beads or blocks.
2. **Growing Patterns**:
    - **Definition**: A sequence where the elements increase by a certain amount each time.
    - **Examples**:
        - Number pattern: 2, 4, 6, 8 (adding 2 each time)
        - Shape pattern: triangle, square, pentagon, hexagon (adding one side each time)
    - **Activity**: Students can create a growing pattern using objects, such as stacking blocks and increasing the number with each layer.
3. **Shrinking Patterns**:
    - **Definition**: A sequence where the elements decrease by a certain amount each time.
    - **Examples**:
        - Number pattern: 10, 8, 6, 4 (subtracting 2 each time)
        - Shape pattern: hexagon, pentagon, square, triangle (removing one side each time)
    - **Activity**: Have students create a shrinking pattern using cut-out shapes, starting from a larger shape and decreasing in size.

Practice Problems

1. **Complete the Pattern**: Provide students with a series of patterns where they need to identify what comes next.
    - Example 1: 1, 2, 1, 2, ___ (Answer: 1)
    - Example 2: Red, red, blue, red, red, ___ (Answer: blue)
2. **Create Your Own Patterns**: Ask students to create their own repeating, growing, or shrinking patterns using colored markers, beads, or drawings.

Practice Activity

1. **Pattern Walk**: Take students on a "pattern walk" around the classroom or school, looking for patterns in nature (like stripes on animals) or in the architecture (like tiles on the floor).
2. **Pattern Art**: Have students create a piece of artwork using a repeating pattern, such as a border design. They can use different colors and shapes to make it visually appealing.

Conclusion

Recognizing and creating patterns helps students develop critical thinking and problem-solving skills. Encourage them to observe and identify patterns in their everyday lives, whether in nature, art, or daily routines. Patterns are all around us, and learning to recognize them is a valuable math skill!