# Introduction to Number Play

#### **Introduction to Number Play**

Number Play is a fun way to explore numbers using different tricks, patterns, and rules. It helps in understanding how numbers work and how they can be manipulated using basic mathematical operations.

#### 1. Odd and Even Numbers

Odd Numbers: Numbers that cannot be divided exactly by 2.

Example: 1, 3, 5, 7, 9

**Even Numbers**: Numbers that can be divided exactly by 2.

Example: 2, 4, 6, 8, 10

Trick: The last digit of an even number is always 0, 2, 4, 6, or 8.

#### 2. Prime and Composite Numbers

Prime Numbers: Numbers that have only two factors (1 and itself).

Example: 2, 3, 5, 7, 11

**Composite Numbers:** Numbers that have more than two factors.

Example: 4, 6, 8, 9, 10

Trick: 2 is the only even prime number!

#### **3. Factors and Multiples**

Factors: Numbers that divide a number exactly.

**Example:** Factors of 12 = 1, 2, 3, 4, 6, 12

Multiples: The numbers that are formed by multiplying a number.

**Example:** Multiples of 5 = 5, 10, 15, 20, 25, ...

Trick: The smallest multiple of any number is the number itself!

#### 4. Divisibility Rules (Easy Tricks to Check Division)

- Divisible by 2: If the last digit is even (0, 2, 4, 6, 8).
- Divisible by 3: If the sum of digits is divisible by 3.

**Example:**  $123 \rightarrow 1 + 2 + 3 = 6$  (divisible by 3)

- Divisible by 5: If the last digit is 0 or 5.
- Divisible by 10: If the last digit is 0.

## 5. Playing with Number Patterns

Pattern in Multiplication Table:

- The last digit in the table of 5 always alternates between 5 and 0.
- The last digit in the table of 9 decreases from 9 to 0.

### Example:

| Multiples of 9 | 09 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 | 90 |
|----------------|----|----|----|----|----|----|----|----|----|----|
| Last Digit     | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  | 0  |

## **Properties of Number Play**

- i. Numbers follow patterns that help in quick calculations.
- ii. Even numbers always end in 0, 2, 4, 6, or 8.
- iii. Odd numbers always end in 1, 3, 5, 7, or 9.
- iv. Prime numbers have only two factors: 1 and itself.
- v. The sum of digits of multiples of 9 always equals 9 or a multiple of 9.
- vi. A number remains the same when multiplied by 1.
- vii. Adding 0 to any number does not change its value.