

# MATHS

## PROGRESSION:

### Multiplication and Division

**Key: Counting in steps**

**Mental calculations**

**Formal written methods**

**Representations/models**

**Known facts**

**Using and applying**

**Estimation and checking**

- ◆ Count in steps of 2, 3 and 5 from 0
- ◆ Recall multiplication facts 2, 5 and 10
- ◆ Recognise odd and even numbers and relate to multiples of 2, 5 and 10 and 3

- ◆ Understand commutativity as multiplication in any order (see why this is not possible for division)

- ◆ Count in 6, 7, 9, 25 and 1000
- ◆ Reason efficiently that 49 is in the 7 times table
- ◆ Recall all multiplication facts up to  $12 \times 12$  (MTC readiness)

- ◆ Mentally divide and multiply with powers of 10 (inc. decimals to hundredths)
- ◆ Be able to apply commutativity and different multiplication methods inc. long and short multiplication
- ◆ Apply knowledge to routine and non-routine problems

- ◆ Recognise factor pairs related to multiples
- ◆ Multiply 2 and 3 digit numbers by 1-digit
- ◆ Show multiplication and division concept in a variety of ways inc. arrays and bar models

- ◆ Understand what it is to group and to share quantities
- ◆ Link doubling to repeated addition and in-

- ◆ Understand when a group is equal / unequal through grouping and sharing
- ◆ Show understanding of doubling and halving and show through objects/ different representations

- ◆ Counting in multiples of 2, 5 and 10. Backward and forward
- ◆ Build on doubling and halving, Ensure solid CPA understanding is established

- ◆ Begin to see multiples as arrays. Make connections and notice patterns
- ◆ One-step problems involving multiplication and division, calculate using objects and different representations
- ◆ Make links to simple fractions  $1/2$ ,  $1/4$

- ◆ Check multiplication calculations by using the inverse (division)
- ◆ Use and apply multiplication and division to routine and non-routine problems

- ◆ Calculate multiplication using formal written methods including partitioning
- ◆ Mentally calculate 2-digit by 1-digit multiplication using known facts
- ◆ Estimate an answer using known facts

- ◆ Count in multiples of 4, 8, 50 and 100
- ◆ Show different representations of multiplication through arrays and bar models
- ◆ Recall multiplication and corresponding division facts for 3, 4 and 8 times tables

- ◆ Find factor pairs and common factors
- ◆ To understand, recognise and calculate squared and cubed numbers
- ◆ To know and recall prime numbers/factors up to 100
- ◆ Apply multiplication and division methods to routine and non-routine problems

- ◆ Multiplication and division with powers of 10 inc. decimals to 3.d.p
- ◆ Multiply and divide numbers mentally using known facts
- ◆ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- ◆ Multiply and divide up to 4-digit by 1-digit numbers (2-digit for multiplication) using formal written methods
- ◆ Interpret remainders with division calculations that generates an unequal quotient

- ◆ Multiply proper fractions and mixed numbers by whole numbers
- ◆ Divide fractions by whole numbers

- ◆ Where there are remainders from division calculations; indicate with decimal and fraction notation
- ◆ Multiply /divide proper and improper fractions

- ◆ Perform multiplication calculations using formal written methods up to 4-digit by 2-digit
- ◆ Perform division calculations using long and short division methods (up to 4-digit by 2-digit)

## YEAR 6

- ◆ Use and apply BODMAS effectively to a range of problems
- ◆ Recall and calculate squared and cubed numbers with efficiency
- ◆ Recall prime numbers fluently

- ◆ Use and apply knowledge of prime numbers to a range of problems
- ◆ Apply methods to real-life problem solving (multi-step) Routine and non-routine

## YEAR 5

## YEAR 3

## YEAR 1

## RECEPTION

## YEAR 4

## YEAR 2