

## WRITTEN ARITHMETIC

### Place Value and the Number System

- a) Read and write all numbers to 10,000,000 in figures and words
- b) Order and compare numbers to 10,000,000 (*i.e. order the following numbers from smallest to largest...*)
- c) Determine the value of each digit in a number to 10,000,000 (*i.e. what is the value of the digit 1 in the number 412,589?*)
- d) Read and write numbers to 3 decimal places
- e) Determine the value of each digit in a decimal number to 3 decimal places
- f) Round a whole number to the nearest 10, 100 and 1,000
- g) Round a decimal number to the nearest tenth and hundredth
- h) Add and subtract negative and positive numbers (*i.e.  $-7 + 15 = ?$* )
- i) Find the difference between a negative and a positive number (*i.e. the temperature is  $16^{\circ}\text{C}$  in London and is  $-27^{\circ}\text{C}$  in Moscow. What is the difference?*)
- j) Recognise and use square numbers up to  $12^2$
- k) Recognise and use cube numbers up to  $10^3$
- l) Find all prime numbers to 100
- m) Count forwards and backwards in any given multiple, including decimals (*i.e. 0.3, 0.6, 0.9, 1.2...*)
- n) Identify all of the factors of a given number and check whether a number is a factor (*i.e. the factors of 72 are 1, 2, 3, 4...*)

### Fractions, decimals and percentages

- a) Add fractions with the same denominator (*i.e.  $\frac{1}{4} + \frac{3}{4}$* )
- b) Add fractions with different denominators (*i.e.  $\frac{3}{8} + \frac{1}{4}$* )
- c) Subtract fractions with the same denominator (*i.e.  $\frac{7}{8} - \frac{5}{8}$* )
- d) Subtract fractions with different denominators (*i.e.  $\frac{7}{8} - \frac{1}{4}$* )
- e) Multiply a fraction by a fraction (*i.e.  $\frac{1}{4} \times \frac{2}{3}$* )
- f) Multiply a fraction by a whole number (*i.e.  $\frac{5}{8} \times 3$* )
- g) Divide a fraction by a fraction (*i.e.  $\frac{7}{8} \div \frac{3}{8}$* )
- h) Divide a fraction by a whole number (*i.e.  $\frac{2}{3} \div 4$* )
- i) Find a fraction of an amount when the numerator is more than 1 (*i.e.  $\frac{3}{4}$  of  $\pounds 128$* )
- j) Solve mixed number fraction problems (*i.e.  $2\frac{3}{4} + \frac{3}{4}$* )
- k) Compare fractions by identifying which is larger or smaller (*i.e. find common denominators*)
- l) Identify fraction bonds to 1 (*i.e.  $\frac{3}{8} + ? = 1$* )
- m) Find equivalent fractions of a given fraction
- n) Reduce fractions to their simplest form
- o) Convert fractions to decimals and percentages
- p) Find percentages of a given number (*i.e. 30% of 450*)

### The Four Operations

- a) Add two or more whole numbers to 1,000,000
- b) Add two or more decimal numbers to 3 decimal places
- c) Add numbers that contain a different number of digits (*i.e.  $6 + 3.26$* )
- d) Add  $10/100/1,000$  to any number to 10,000,000
- e) Subtract two or more whole numbers to 1,000,000
- f) Subtract two or more decimal numbers to 3 decimal places
- g) Subtract numbers that contain a different number of digits (*i.e.  $9 - 2.72$* )
- h) Subtract  $10/100/1,000$  from any number to 10,000,000
- i) Multiply a number by a single digit (*i.e.  $437 \times 6$* )
- j) Multiply a number by a 2-digit number (*i.e.  $269 \times 27$* )
- k) Multiply numbers that contain decimals (*i.e.  $45.6 \times 9$* )
- l) Multiply any number by  $10/100/1,000$ , including decimals to 3 decimal places (*i.e.  $112 \times 100$ ,  $0.067 \times 10$* )
- m) Divide a number by a single digit (*i.e.  $448 \div 8$* )
- n) Divide a number by a 2-digit number (*i.e.  $1513 \div 17$* )
- o) Divide numbers that contain decimals (*i.e.  $\pounds 46.80 \div 6$* )
- p) Divide any whole number to find a remainder
- q) Divide any number by  $10/100/1,000$ , including decimals to 3 decimal places (*i.e.  $45.07 \div 100$* )
- r) Solve problems using knowledge of BODMAS (*i.e.  $2 + 1 \times 3 = 5$ , and  $(2 + 1) \times 3 = 9$* )
- s) Calculate the mean average of a set of data

### Algebra

- a) Find the value of the letter in an algebraic equation (*i.e.  $4y + 3 = 23$ , what is  $y$ ?*)
- b) Solve an algebraic equation when a value is given (*i.e.  $t = 3$ , what is  $7t - 6$ ?*)
- c) Find pairs of numbers that satisfy an equation with 2 unknowns (*i.e.  $y \times t = 60$ , what could  $y$  and  $t$  be?*)
- d) Continue missing number patterns (*i.e. 0.3, \_\_, 0.9...*)

### Measurement

- a) Convert between different units of distance (*i.e. mm, cm, m, km*)
- b) Convert between different units of weight (*i.e. g and kg*)
- c) Convert between different units of capacity (*i.e. ml and L*)
- d) Use knowledge of time facts to solve time problems (*i.e. order the following from smallest to largest: 2 fortnights, 26 days, April, 648 hours*)

Each child will be told which objective to begin with. These will then be taught in class as written arithmetic starters alongside home learning.

At the end of each week, the children will sit a short 10 question Rocket Test which they will have to pass in order to move onto the next step.

Every time a child achieves 3 of the objectives, they will receive a certificate during Rewards Assembly and a prize.

These objectives **WILL** be in your child's SATs tests this year so it is important that they focus on learning these objectives at home as well as in school.