

# Year 5 Objectives: Number

## NUMBER AND PLACE VALUE

### Objective 1: Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit

Revise reading and writing numbers to: 1000 and then to 10,000.	*1
Read and write numbers to 50,000	
Read and write numbers to 1,000,000	*2
Recognise the value of each digit up to 1,000,000	
Know and use terms: units; tens, hundreds, thousands, ten thousands, hundred thousands and one million correctly	
Partition any number up to 1,000,000 showing the value of each digit	

## NUMBER AND PLACE VALUE

### Objective 2: Count forwards and backwards in steps of powers of 10 (100, 1000, 10,000 ) for any given number up to 1,000,000

Count onwards and backwards from a given number in steps of 100s	*1
Count onwards and backwards from a given number in steps of 1000s	*2
Count onwards and backwards from a given number in steps of 10,000s	*3
Count onwards and backwards from a given number in steps of 100,000s	*4
Count onwards and backwards from a given number in steps of 1,000,000s	

# Year 5 Objectives : Number 2

## NUMBER AND PLACE VALUE

**Objective 3: Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero**

Interpret temperatures at minus $^{\circ}\text{C}$ on a thermometer	<b>*1</b>
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Count forwards from - 20 to + 20	<b>*2</b>
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Count backwards from + 30 to -30	
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**Objective 4: Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000**

Round any number up to 100 to the nearest 10	<b>*1</b>
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Round any number up to 1000 to the nearest 10	
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Round any number up to 1000 to the nearest 100	
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Round any number up to 10,000 to the nearest 1,000, 100 or 10	<b>*2</b>
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Round any number up to 100,000 to the nearest 10,000, 1000, 100 or 10	
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Round any number up to 1,000,000 to the nearest 100,000, 10,000, 1000, 100 or 10	
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## NUMBER AND PLACE VALUE

**Objective 5: Estimate the answers to calculations involving addition, subtraction, multiplication and division**

Estimate the answer to any given addition or subtraction involving two 2-digit numbers to the nearest 10	<b>*1</b>
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Estimate the answer to any given addition or subtraction involving two 3-digit numbers to the nearest 100	<b>*2</b>
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Estimate the answer to any given addition or subtraction involving two 3-digit numbers to the nearest 10	<b>*3</b>
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Estimate the answer to any given multiplication involving two 2-digit numbers to the nearest 10	<b>*4</b>
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Estimate the answer to any given multiplication involving two 3-digit numbers to the nearest 100	
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Estimate the answer to any given multiplication involving two 3-digit numbers to the nearest 10	
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Estimate the answer to any given division involving a 2-digit number divided by a 1-digit number to the nearest 10	
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Estimate the answer to any given division involving a 3-digit number divided by a 1-digit number to the nearest 100	
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Estimate the answer to any given division involving a 3-digit number divided by a 1-digit to the nearest 10	
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# Year 5 Objectives : Number 3

## NUMBER AND PLACE VALUE

**Objective 6: Solve number problems and practical problems that involve all of the above, including addition, subtraction, multiplication and division**

Calculate the answer to any given addition involving two 2-digit numbers to the nearest 10

Calculate the answer to any given addition involving two 3-digit numbers to the nearest 100

Calculate the answer to any given addition involving two 3-digit numbers to the nearest 10

**Objective 7: Read Roman numerals to 1000 (M) and recognise years written in Roman numerals**

Remember the Roman numerals from 1 to 10 \*1

Remember the Roman numerals for 50 \*2

Remember the Roman numerals for 100 \*3

Know all Roman numerals up to 1000 \*4

## ADDITION AND SUBTRACTION

**Objective 8: Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)**

Add 2 numbers with 5-digits together using column addition without exchange between units and tens \*1

Add 2 numbers with 5-digits together using column addition, where the units, tens or hundreds when added make more than 10. \*2

Add 3 numbers with 5-digits using column addition where the units, tens or hundreds make more than 10

Subtract a 5-digit number from another using column subtraction which requires no exchange between the units, tens, hundreds or thousands \*3

Subtract a 5-digit number from another using column subtraction which requires exchange between the units, tens, hundreds or thousands (or any two of these) \*4

# Year 5 Objectives : Number 4

## ADDITION AND SUBTRACTION

### Objective 9: Add and subtract numbers mentally with increasingly large numbers

Add together mentally any two 2-digit numbers \*1

Subtract any 2-digit number from a 2 or 3-digit number

Add together mentally any 2-digit and any 3-digit number

Subtract any 2-digit number from a 3 or 4-digit number \*2

Add together mentally any two 3-digit numbers \*3

Subtract mentally any two 3-digit numbers

Add together mentally any 1000s number and any 5-digit number \*4

Subtract any 1000s number from a 5-digit number

## ADDITION AND SUBTRACTION

### Objective 10: Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy

Use rounding to add together mentally any two 2-digit numbers, eg.  $29 + 39 = 30 + 40 - 2 =$

Use rounding to subtract any 2-digit number from a 2 or 3-digit number, eg.  $321 - 19 = 320 - 20$

Use rounding to add together mentally any two 3-digit numbers, eg.  $398 + 449 = 400 + 450 - 3 =$

Use rounding to add together mentally any 1000s number and any 5-digit number, eg.  $4203 + 58502 = 4200 + 58500 + 3 =$

### Objective 11: Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Solve a range of addition and subtraction multi-step problems involving numbers to at least 1, 000, 000

# Year 5 Objectives : Number 5

## MULTIPLICATION AND DIVISION

### Objective 12: Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers

Identify all multiples of numbers up to 100

Know all factors that make up all numbers to 100

### Objective 13: Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers

Describe what a prime number is

Recognise all prime numbers to 100

Explain why a number is not a prime number

### Objective 14: Establish whether a number up to 100 is a prime number and recall prime numbers to 19

Recognise all prime numbers to 100

Explain why a number is or is not a prime number

## MULTIPLICATION AND DIVISION

### Objective 15: Multiply numbers up to 4-digits by a 1 or 2-digit number using a formal written method, including long multiplication for 2-digit numbers

Multiply any number with 3-digits by a single digit number

**\*1**

Multiply any number with 4-digits by a single digit number

**\*2**

Multiply any number with 3-digits by a 2-digit number

**\*3**

Multiply any number with 4-digits by a 2-digit number

**\*4**

### Objective 16: Multiply and divide mentally, drawing upon known facts

Use mental applications to multiply and divide numbers making use of known number facts included in x table between x2 and x12

# Year 5 Objectives : Number 6

## MULTIPLICATION AND DIVISION

**Objective 17: Divide numbers up to 4-digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context**

Divide any number with 3-digits by a single digit number	<b>*1</b>
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Divide any number with 4-digits by a single digit number	
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Divide any number with 3-digits by a single digit number with remainder	<b>*2</b>
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Divide any number with 4-digits by a single digit number with remainder	<b>*3</b>
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Divide any number with 3-digits by 10, showing remainder where appropriate	
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Divide any number with 4-digits by 10, showing remainder where appropriate	<b>*4</b>
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## MULTIPLICATION AND DIVISION

**Objective 18: Multiply and divide numbers by 10, 100 and 1000**

Multiply any 2, 3, 4, 5 or 6-digit number by 10	<b>*1</b>
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Divide any 2, 3, 4, 5 or 6-digit number by 10	<b>*2</b>
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Multiply any 2, 3, 4, 5 or 6-digit number by 100	
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Divide any 3, 4, 5 or 6-digit number by 100	
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Multiply any 2, 3, 4, 5 or 6-digit number by 1000	<b>*3</b>
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Divide any 4, 5 or 6-digit number by 1000	<b>*4</b>
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# Year 5 Objectives : Number 7

## MULTIPLICATION AND DIVISION

**Objective 21: Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign**

Solve problems involving subtraction with numbers up to 1,000,000

Solve problems involving multiplication with numbers up to 1,000,000

Solve problems involving division with numbers up to 1,000,000

Solve problems involving a combination of the above with numbers up to 1,000,000

Understand and use the equals sign to indicate equivalence, including in missing number problems, e.g.  $13 + 24 = 12 + 25$

**Objective 22: Solve problems involving multiplication and division including scaling by simple fractions and problems involving simple rates**

Use multiplication and division as inverses, eg. multiply and divide by powers of 10 in scale drawings or multiplying and dividing by powers of a 1000 in converting between units such as kilometres and metres

## MULTIPLICATION AND DIVISION

**Objective 19: Recognise and use square numbers and cube numbers, and the notation for squared ( $^2$ ) and cubed ( $^3$ )**

Know the square of all numbers between 2 and 12 by heart **\*1**

Use the symbols ( $^2$ ) and ( $\sqrt{\quad}$ ) accurately **\*2**

Know the relationship between the square of a number and the square root of a number **\*3**

Know the cube of all numbers between 2 and 12 by heart

Use the symbol ( $^3$ ) accurately **\*4**

**Objective 20: Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes**

Solve problems involving multiplication and division, with numbers up to 1,000,000

# Year 5 Objectives : Number 8

## FRACTIONS (INCLUDING DECIMALS AND PERCENTAGES)

### Objective 23: Compare and order fractions whose denominations are all multiples of the same number

Compare and order fractions with the same denominator

Compare and order fractions with denominators of 2, 4 and 8

Compare and order fractions with denominators 5 and 10

Know how to convert fractions with different denominators into a common denominator

Order 2 different fractions with different denominators that are multiples of the same number

Order more than 2 different fractions with different denominators that are multiples of the same number

### Objective 24: Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths

Identify equivalent fractions for  $\frac{4}{6}$ ,  $\frac{5}{10}$ ,  $\frac{40}{100}$

# Year 5 Objectives : Number 9

## FRACTIONS (INCLUDING DECIMALS AND PERCENTAGES)

**Objective 25: Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements  $> 1$  as a mixed number , e.g.  $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}$**

Know that a whole number can be written as  $\frac{2}{2}$  or  $\frac{4}{4}$ , etc.

Know that 1 and a half can be written as  $\frac{3}{2}$

Convert any improper fraction to a mixed fraction and vice versa

**Objective 26: Add and subtract fractions with the same denominator and denominators that are multiples of the same number**

Add two fractions that have the same denominator with an answer of less than 1

Add two fractions that have the same denominator with an answer of more than 1, and then translate to a mixed number

Subtract two fractions with denominators that are multiples of the same number

Subtract a fraction from a mixed number with denominators that are multiples of the same number

## FRACTIONS (INCLUDING DECIMALS AND PERCENTAGES)

**Objective 27: Multiply proper fractions and mixed fractions by whole numbers, supported by material and diagrams**

Multiply a proper fraction by 10

**\*1**

Multiply a proper fraction by any whole number up to 10

**\*2**

Multiply a mixed fraction by 10

**\*3**

Multiply a mixed fraction by any number up to 10

**\*4**

# Year 5 Objectives : Number 10

## DECIMALS

### Objective 28: Read and write decimal numbers as fractions (e.g. $0.71 = 71/100$ )

Write 0.5; 0.25; 0.1; as fractions \*1

Write any decimal with 1 decimal place as a fraction \*2

Write any decimal with 2 decimal places as a fraction \*3

### Objective 29: Recognise and use thousandths and relate them to tenths, hundreds and decimal equivalents

Know that 10 thousandths are equivalent to one tenth

Work out how many thousandths there are in any given hundredth value

Work out how many thousandths there are in any given tenth value

Work out how many thousandths there are in any unit value

Work out how many thousandths there are in any number to include u, t, h and th

## DECIMALS

### Objective 30: Round decimals with 2 decimal places to the nearest whole number and to one decimal place

Round any number to the nearest whole number, e.g.  $18.23 \rightarrow 18$  \*1

Round any number to one decimal place, eg.  $17.91 \rightarrow 17.9$  \*2

### Objective 31: Read, write, order and compare numbers with up to 3 decimal places

Order decimal fractions with 1 decimal place \*1

Order decimal fractions with 2 decimal places \*2

Order decimal fractions with 3 decimal places \*3

Order a set of decimal fractions with between 1 and 3 decimal places \*4

# Year 5 Objectives : Number 11

DECIMALS	
<b>Objective 32: Solve problems involving number up to three decimal places</b>	
Add numbers with 1 decimal place	
Add numbers with 2 and then 3 decimal places	
Subtract numbers with 1 decimal place	
Subtract numbers with 2 and then 3 decimal places	
Solve a range of problems involving the above	
<b>Objective 33: Recognise the % symbol and understand that per cent relates to 'a part of a hundred'</b>	
Know what the % symbol stands for	
Know that percentages deals with everything as part of 100	

PERCENTAGES	
<b>Objective 34: Write percentages as a fraction with denominator 100, and as a decimal percentages (eg <math>\frac{1}{2} = 50\% = 0.5</math>)</b>	
Know that 50% is $50/100 =$ one half $= \frac{1}{2}$	<b>*1</b>
Know that 0.5 is 50%	
Know that one quarter is $25\% = 25/100 = \frac{1}{4}$	
Know that 0.25 is $25\% = \frac{1}{4}$	
Know percentage value of all tenths; fifths; quarters and eighths	<b>*2</b>
<b>Objective 35: Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math> <math>\frac{4}{5}</math></b>	
<b>Objective 36: Solve problems which require knowing those fractions with a denominator of a multiple of 10 or 25</b>	