

Year 5

Teaching Maths for mastery involves employing approaches that help pupils to develop a deep and secure knowledge and understanding of mathematics at each stage of their learning, so that by the end of every school year or Key Stage, pupils will have acquired mastery of the mathematical facts and concepts they've been exposed to, equipping them to move on confidently and securely to more advanced material.

Place value

- Read, write, order and compare numbers to at least 1000000 and determine the value of each digit.
- Count forwards or backwards in steps of powers of 10 for any given number up to 1000000.
- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero.
- Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000
- Solve number problems and practical problems that involve all of the above.
- Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

Show me 8,045 in three different ways.

Do you prefer to use concrete objects or draw an image pictorially? Why?

Make 1,500 and explain why you chose to make it this way (use this to see what concrete objects children choose to use)

1 Match the diagram to the number.

4,005 4,500 4,050

2 Which diagram is the odd one out?

6,000 6,000

3 Complete the table.

	Add 10	Add 100	Add 1,000
2,506			
7,999			
		6,070	

Place Value Reasoning and Problem Solving:

Harriet has made five numbers, using the digits 1, 2, 3 and 4

She has changed each number into a letter.

Her numbers are:

- 1) aabdc
- 2) acdbc
- 3) dcaba
- 4) cdadc
- 5) bdaab

Here are three clues to work out her numbers:

- Number 1 is the greatest number.
- The digits in number 4 total 12
- Number 3 is the smallest number.

- 1) 44,213
- 2) 43,123
- 3) 13,424
- 4) 31,413
- 5) 21,442

Simon says he can order the following numbers by only looking at the first three digits.

12,516

12,832

12,679

12,538

12,794

Is he correct?

Explain your answer.

He is incorrect because two of the numbers start with twelve thousand, five hundred therefore you need to look at the tens to compare and order.

Why is there no zero in the Roman numerals? What might it look like?

Do you notice any patterns? Look at 30 and 300

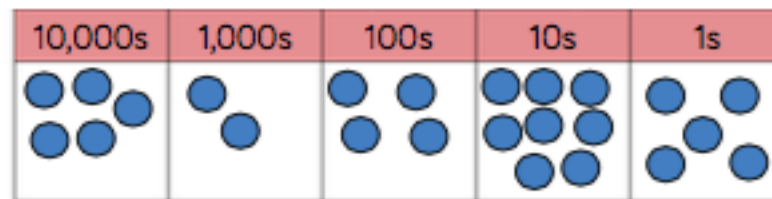
How can you check you have represented the Roman numeral correctly?

How can we estimate a number on a number line if there are no divisions?

How many digits change when you add 10, 100 or 1000?

Do you need to count forwards and backwards to find out if a number is in a number sequence? Explain.

1 A number is shown in the place value chart.



Write the number in figures and in words.

- Ashy adds 10 to this number
- Zack adds 100 to this number
- Isobel adds 1,000 to this number

Write each of their new numbers in figures and in words.

2 Complete the grid to show the same number in different ways.

Counters		Part-whole model
	65,048	
Bar model		Number line

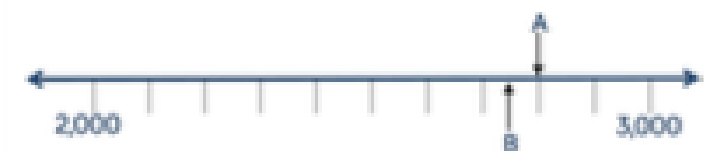
3 Complete the missing numbers.

$$59,000 = 50,000 + \dots\dots\dots$$

$$\dots\dots\dots = 30,000 + 1,700 + 230$$

$$75,480 = \dots\dots\dots + 300 + \dots\dots\dots$$

Here is a number line.



What is the value of A?

B is 40 less than A.

What is the value of B?

C is 500 less than B.

Add C to the number line.

$$A = 2,700$$

$$B = 2,660$$



Here are three ways of partitioning 27,650

27 thousands, 650 ones

27 thousands, 5 hundreds and 150 ones

27 thousands and 65 tens

Write three more ways

Possible answers:
27 thousands, 6
hundreds and 5 tens

27 thousands, 7
thousands and 650
ones

20 thousands, 7
thousands and 650
ones

Jennie counts forwards and backwards in 10s from 317

Circle the numbers Jennie will count.

427	997	507
1,666	3,210	5,627
-23	7	-3

Explain why Jennie will not say the other numbers.

427

997

5,627

7

-3

-23

Any positive number will always have to end in a 7

Any negative number will always have to end in a 3

Addition and subtraction

- Add and subtract numbers mentally with increasingly large numbers.
- Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Statistics

- Solve comparison, sum and difference problems using information presented in a line graph.
- Complete, read and interpret information in tables including timetables.

Multiplication and division

- Multiply and divide numbers mentally drawing upon known facts.
- Multiply and divide whole numbers by 10, 100 and 1000.
- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.
- Recognise and use square numbers and cube numbers and the notation for squared (2) and cubed (3)
- Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.
- Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
- Establish whether a number up to 100 is prime and recall prime numbers up to 19

Perimeter and Area

- Measure and calculate the perimeter of composite rectilinear shapes in cm and m.
- Calculate and compare the area of rectangles (including squares), and including using standard units, cm^2 , m^2 estimate the area of irregular shapes.