Key concepts that will be covered	Arithmetic

Numbers to 1000

We will learn numbers to 1000 and focus on the value of each digit: place value. We will learn how to compose and decompose numbers, compare, order and look for patterns.

Which number is greater, 316 or 238?

Shop A

hundreds	tens	ones
3	1	6

Shop B

hundreds	tens	ones
2	3	8

3 hundreds is more than 2 hundreds.
316 is more than 238.
Shop A has more rubbers.

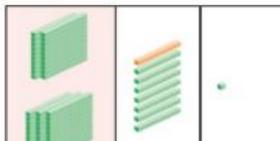What should we compare first?

100

Count in eights.
108, 116, 124.

There are 124 coins.

Addition and Subtraction

We will learn to use formal methods of addition and subtraction where regrouping is required. We will learn to solve problems using addition and subtraction, using the bar model as a visual aid.

Step 3   Add the hundreds.
2 hundreds + 3 hundreds = 5 hundreds

	h	t	o
	2	3	6
+	3	4	5
	5	8	1

Step 3   Subtract the hundreds.
5 hundreds – 1 hundred = 4 hundreds
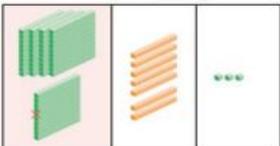
	h	t	o
	6	0	8
–	1	3	5
	4	7	3

608 – 135 = 473

Counting

Find 1, 10 or 100 more or less than a given number.

229 + 1 = __   229 + 10 = __   229 + 100 = __
200 = __ + 1   479 + __ = 480   726 + __ = 826
400 – 1 = __   261 – 10 = __   __ = 812 – 100

Count from 0 in multiples of 4, 8, 50 and 100

Count from 0 in fours
Count from 0 in eights
What number is missing from this counting sequence? 0, 8, 16, 32, 40, 48
What number would come next in this counting sequence? 0, 50, 100, 150, 200, _

Count up and down in tenths.

Count on from 0 in tenths.
What would come next in this counting sequence? $0, \frac{1}{10}, \frac{2}{10}, \frac{3}{10}, \frac{4}{10}$

What is missing from this number sequence? $\frac{7}{10}, \frac{6}{10}, \frac{5}{10}, \frac{3}{10}, \frac{2}{10}$

Number Facts

Recall addition and subtraction facts for 100 (multiples of 5 and 10).

100 – 30 = __   20 + __ = 100   100 = __ + 5
100 – 45 = __   100 – __ = 15   65 = 100 – __

Recall and use multiplication division facts for the 3, 4 and 8 multiplication tables.

6 x 3 = __   2 x 4 = __   4 x 8 = __
20 = 4 x __   21 = 3 x __   32 = __ x 8   __ x 4 =
28   30 ÷ 3 = __   24 ÷ 4 = __   72 ÷ 8 = __   3
= 36 ÷ __
__ = 32 ÷ 4   __ = 48 ÷ 6

Maths	Year group 3	Autumn 2nd half term

Key concepts that will be covered		Arithmetic

Multiplication and Division

We will learn to multiply and divide by 3, 4 and 8. We will then use this experience of multiplication and division to solve word problems.

10 rows of 4 = 40
10 × 4 = 40

10 × 4 = 40
What is 9 × 4?
How can we tell?

Put 12 🧁 into groups of 4.

12 ÷ 4 = 3

3 plates are needed.

There are 5 groups of 3 children.
Each group has 3 children.
How many children are there altogether?

5 × 3 = 15

There are 5 groups of 3.

There are 15 children altogether.

Further Multiplication and Division

We will learn to multiply and divide using both informal and formal methods. We will solve problems such as missing number problems and scaling problems.

23
20   3

Step 1   Multiply the ones by 2.
3 ones × 2 = 6 ones

Step 2   Multiply the tens by 2.
2 tens × 2 = 4 tens

Step 3   Add the products.
6 + 40 = 46

23 × 2 = 46
There are 46 children in the 2 classes.

96
80   16

First, I take 80 from 96.
Then, I take 16 from the remaining 16.

96
80   16

8 tens ÷ 8 = 1 ten

Mental Calculation Strategies - Addition and Subtraction
Identify and use knowledge of number bonds within a calculation.
42 + 38   42 + 30 + 8   (recognising that 2 and 8 is a number bond to 10, so the answer will be a multiple of 10)
60 – 28   60 – 20 – 8
(using knowledge that 10 – 8 = 2, so 40 – 8 = 32)
120 – 50   120 – 20 – 30   (using knowledge of number bonds to 100, leaving an answer of 70)

Derive and use addition and subtraction facts for 100
100 – 43 = __   22 + __ = 100   100 = __ + 9
100 – 76 = __   100 – __ = 48   66 = 100 – __

Derive and use addition and subtraction facts for multiples of 100 that total 1000
1000 – 300 = __   200 + __ = 1000   1000 = __ + 500
1000 – 400 = __   1000 – __ = 100   600 = 1000 – __

Reorder numbers in a calculation.
23 + 54   54 + 23   12 + 19 + 12   12 + 12 + 19 (using knowledge of doubles)
6 + 8 + 4   6 + 4 + 8 (using knowledge of number bonds to10)
70 + 50 + 30   70 + 30 + 50 (using knowledge of number bonds to 100)

Partition and combine multiples of hundreds, tens and ones.
526 + 200   counting on in hundreds
137 + 40   counting on in tens
272 + 8   counting on in ones (or using knowledge of bonds to 10)

Find differences by counting up through the next multiple of 10 or 100
60 – 43   useful for time calculations, e.g. a journey time from 2:43 until 3:00
53 – 38   efficient because the numbers are close to each other

Bridge through 10 when adding or subtracting a single digit number (partitioning, e.g. 58 + 5 = 58 + 2 + 3 or 76 – 8 = 76 – 6 – 2)

**Add or subtract 9, 19, 29 etc by rounding and compensating**

Maths	Year group 3	Spring 1st half term

Key concepts that will be covered		Arithmetic

Length

We will embed our understanding of measuring length in metres and centimetres before moving on to kilometres. We will learn to convert different units of measurement as well as compare different lengths. We will solve problems in which we will use our mental and procedural skills to solve problems with the aid of the bar model.

We use a tape measure to measure lengths longer than 1 metre.
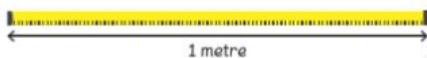
1 metre

Your teacher will show you an actual tape measure.

1 m = 100 cm

Mass

We will be using scales to measure mass in g and kg, reading scales that have different values for each marking. We will then solve some challenging word problems using the bar model.

We use weighing scales.

The bag of crisps weighs about 200 g.

The watermelon weighs about 1 kg.

Volume

We will learn to measure volume using millilitres and litres. We will solve a range of problems involving volume and capacity.

This beaker measures up to 1 litre or 1000 millilitres. Each marking stands for 50 millilitres.

200

100 100ml

100, 200, 300, 400, 500, 600

We can also read in steps of 100 millilitres.

Mental Calculation Strategies – Multiplication and Division

Derive and use doubles of all numbers to 100 and corresponding halves.

Double 46   Halve 86   29 + 29   Find half of 54
38 x 2   92 ÷ 2

Derive and use doubles of all multiples of 50 to 500

Double 350   400 + 400   450 x 2

Multiply a one- or two-digit number by 10 and a one-digit number by 100

3 x 10   7 x 100   62 x 10

Within known tables, use related facts to multiply TO by a one-digit number NB TO represents a two-digit multiple of ten.

60 x 3

related to 6x3 because 60 x 3 = 10 x 6 x 3 which can be reordered to 6 x 3 x 10

50 x 4

related to 5 x 4 because 50 x 4 = 10 x 5 x 4 which can be reordered to 5 x 4 x 10

Within known tables, use partitioning to multiply 1 by a one-digit number 31 x 4 = 30 x 4 add 1 x 4 (said as 'thirty fours add one four')

31 x 4 = 120   +   4

31 x 4 = 124

Key concepts that will be covered		Arithmetic

## Money

We will embed our previous learning on recognising different denominations (both notes and coins) and the simple addition and subtraction of money. We will then develop the concepts related to addition and subtraction of money using number bonds as a key method. We will then apply our new knowledge to solve word problems using bar modelling as a key strategy.

Add £10 and 45p and £3 and 35p.

£10 and 45p   £3 and 35p   Add the pence first.

£10   45p   £3   35p
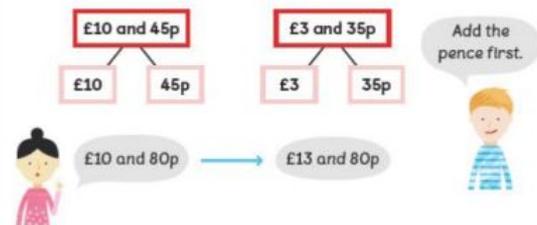
£10 and 80p → £13 and 80p

The total price is £13 and 80p.

Find the sum of £10 and 45p and £3 and 35p.

```
   1
   45
 + 35
 ____
   80
```

Add the £: £10 + £3 = £13
Add the p: 45p + 35p = 80p

The sum is £13 and 80p.

Time

We will tell the time using 'am' and pm', telling the time to the minute, using analogue and digital time and telling time by using both the minute and hour hands. We will then learn to use the 24-hour clock and clocks using roman numerals. We will understand how to measure and compare time in seconds, hours and minutes. We will convert units of time and then find a number of days in lengths of time.

Charles arrives in school at ⏰ every school day.

8:25 a.m.

8:25 in the morning.

25 minutes past 8 in the morning.

8:25
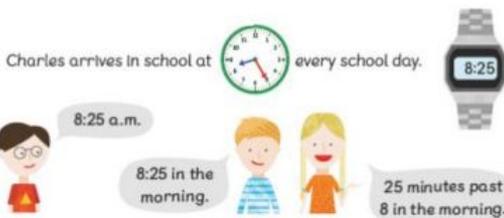
Arithmetic

Mental Calculation Strategies – Multiplication and Division

Use compensation to multiply 19 by a one-digit number

$19 \times 4 = 20 \times 4$ subtract 1×4 (said as 'twenty fours subtract one four')

$19 \times 4 = \quad 80 \quad - \quad 4$

$19 \times 4 = 76$

Use partitioning to double any two-digit number

Double 39, double 52, double 85

Use related facts or partitioning to double any multiple of 50 to 500
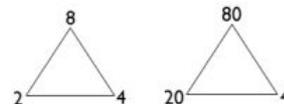
Double 250, double 450, double 150

Use related facts to divide T0 by a one-digit number

NB T0 represents a multiple of ten

$60 \div 3$ related to $6 \div 3$

$80 \div 40$ related to $8 \div 4$

$90 \div 3$ related to $9 \div 3$

[triangle diagram: 8 at top, 2 and 4 at bottom] [triangle diagram: 80 at top, 20 and 4 at bottom]

Use partitioning to halve even numbers up to 200

Find half of 162   by partitioning into 160 and 2

Find half of 94 by partitioning into 80 and 14

Find half of 136   by partitioning into 120 and 16

| Key concepts that will be covered	Arithmetic

Picture Graphs and Bar Graphs

We will be learning about how to create and interpret picture graphs and bar graphs. We will create picture graphs where the pictures can represent more than 1 item. Then, we will start to create bar graphs. We will then read and interpret information from bar graphs.

Ravi and Lulu asked the pupils in a class to name their favourite type of book.

Favourite Type of Book

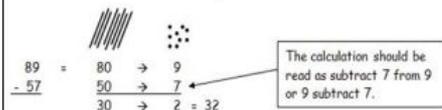| type of book	number of pupils
mystery	//// //// //
science fiction	////
comic	//// ////
fairy tale	//

This bar graph shows the same information.
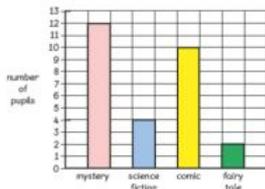
Fractions

We will begin by counting using fractions and then making number pairs (the fraction equivalent to number bonds) before moving on to adding and subtracting fractions. We will explore equivalent fractions and look at simplifying fractions before comparing fractions with different denominators. We will be finding fractions of whole numbers as part of set and looking at sharing 1 and more than 1. We will apply our learning to solve increasingly sophisticated word problems.

This is $\frac{1}{5}$.

This is $\frac{2}{10}$.

$$\frac{1}{5} = \frac{2}{10}$$ (×2)

Progression Towards Written Calculation Strategies – Addition
Introduce column method of addition.

Written method

Step 1	Step 2	Step 3
T U	T U	T U
6 5	6 5	6 5
+ 2 7	+ 2 7	+ 2 7
	2	9 2
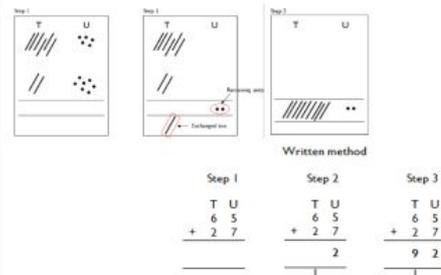
Progression Towards Written Calculation Strategies – Subtraction
Introduce column method of subtraction.

89   =   80 →   9
- 57   50 →   7
            30 →   2 = 32

The calculation should be read as subtract 7 from 9 or 9 subtract 7.

Exchanging   becomes   moving to

60 → 11
- 40 → 6
20 → 5 = 25

70 → 1
- 40 → 6

        60
        7̶0̶ → ¹1
      - 40 → 6
        20 → 5 = 25
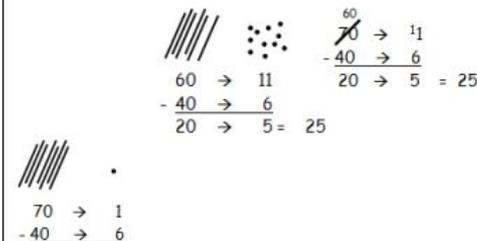
Key concepts that will be covered		Arithmetic

## Lines and Shapes

We will be exploring different types of lines in addition to properties of shapes, both 2- and 3-D. We will learn to identify perpendicular and parallel lines, followed by horizontal and vertical lines. We will learn the vocabulary to describe 2- dimensional shapes and learn to draw them before making 3-dimensional shapes using nets and clay.

What shape do you get?
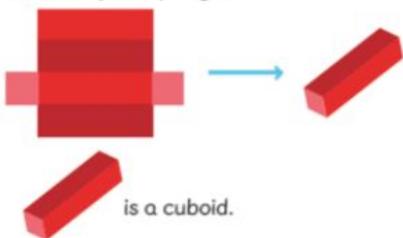
is a cuboid.

How many edges does a cuboid have?

A cuboid has 12 edges.
Look for perpendicular lines.

These two lines are perpendicular.

AB is perpendicular to BC.

Are there more pairs of perpendicular lines?

Perimeter of Figures

We will learn to measure the total length around a shape to find its perimeter before moving onto grid paper to measure the combined lengths of each side. We will learn to calculate perimeter by adding all of the lengths together. We will learn to solve problems using perimeter.

1 cm
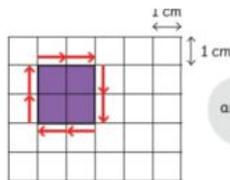
The total length around a figure is called the **perimeter** of the figure.

The perimeter of the square is 8 cm.

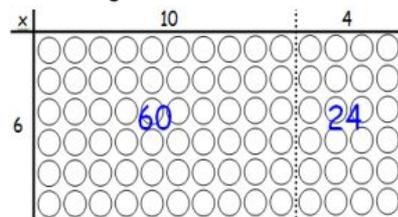Recall that perimeter is the length around the figure.
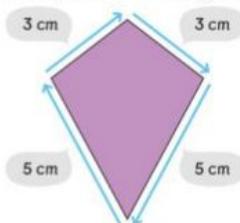
3 cm   3 cm

5 cm   5 cm

Use a ruler to measure the length of each side.

Perimeter = 5 cm + 3 cm + 3 cm + 5 cm
= 16 cm

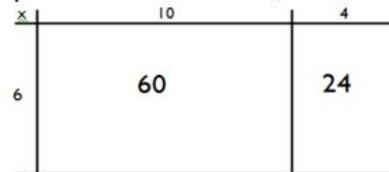## Progression Towards Written Calculation Strategies – Multiplication

Multiplication of a two digit number by a one digit number – grid method

60 + 24 = 84
So 14 x 6 = 84

60 + 24 = 84
So 14 x 6 = 84

Progression Towards Written Calculation Strategies – Division

Division using a vertical number line to show efficient repeated subtraction

Subtract 13 groups of 4

Subtract 10 groups of 4

Subtract 13 groups of 4 in total

Subtract 3 groups of 4

Subtract 10 groups of 4

Subtract 13 groups of 4 in total

Subtract 3 groups of 4