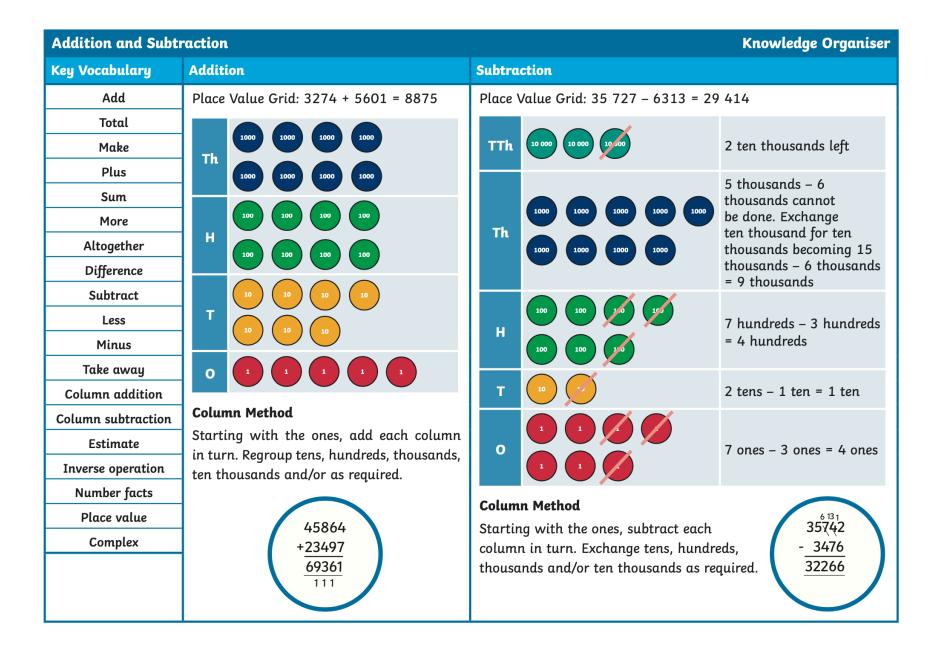
Number and Place	Value									Knov	vledge	e Org	aniser
Key Vocabulary	Compare and Order												
millions	eq	uals				greater	·tł	ıan			less	than	
thousands	26 + 38	8 = 8 >	× 8	23 873 > 8256					901 198 < 1 091 098				
hundreds	Both calcu	lations	have		The	number on)		number o		
tens		alue 64.		ten		sands and t		•			lion and	•	
ones						ht has 0 te					he left ha		
zero													
place value	smallest	8	98	6735		6835		7019		9002	11 2	35	greatest
greater than		No. of No. 1											
less than	Negative Numbers												
order	-25-24-23-22-21-20-19-18-17-16-15-14-13-12-11-10-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25												
round													
rounded		Counting in Powers of 10											
negative number	Counting	in 10s						Counting)s			
partition	365	375	385	395	405	415]	2841	2941	3041	3141	3241	3341
digit		0.0		3.0							0		
interval		The tens increase until 9 tens becomes one more hundred and 0 tens. The hundreds increase until 9 hundreds becomes on more thousand and 0 hundreds.						omes one					
sequence	Counting in 10 000s Counting in 100 000s												
linear sequence	Counting in 10 000s					1	2 972 1		072 151	3 172 1	F1 2	272 151	
	276 109 286 109 296 109 306 109 The ten thousands increase until 9 ten thousands become one more hundred thousand and 0 ten thousands.						The hund	dred the	ousands in nes one mo	crease un	til 9 hun		

Knowledge Organiser Number and Place Value **Numbers to One Million** 926 471 900 000 20 000 Hundred Ten Thousands | Hundreds Tens Ones Thousands **Thousands** 6000 2 7 4 926 471 nine hundred and twenty-six thousand, four hundred and seventy-one 400 70 1 1 000 000 0 500 000 600 000 700 000 900 000 100 00 200 000 300 000 400 000 800 000 **Roman Numerals** Rounding Rounding to the nearest 10 II = 2III = 3 I = 1V = 5VI = 6VII = 7 VIII = 8 IV = 422 23 24 25 26 27 28 29 30 20 XXX = 30 X = 10 XX = 20 IX = 9 XI = 11round down round up LX = 60LXXX = 80 L = 50 LXX = 70XL = 40Rounding to the nearest 1000 XC = 90 C = 100 CL = 150CC = 200CCC = 300 2499 2500 2000 -→3000 DCC = 700 DCCC = 800 DC = 600CD = 400D = 500 round down round up CM = 900M = 1000MC = 1100MD = 1500MM = 2000 Rounding to the nearest 100 000 200 000 -**-**249 999 | 250 000 • ▶ 300 000 CCXLVIII = 248 DCCLXXXIV = 784 MMXIX = 2019round down round up



Addition and Subtraction

Knowledge Organiser

Estimate and Approximate

Rounding to Estimate

Round to ten:

Rounding is not as accurate when both numbers are rounded up. A better estimate comes from "rounding" one down and one up.

Estimating on a Number Line

10 000 50 000

The arrow is about $\frac{3}{4}$ of the way across the line so it is 40 000.



Use the inverse to check:

53 476 32 732 20 744

To check 53 476 – 32 732 = 20 744 use 32 732 + 20 744 = 53 476

Start with a number, subtract 409 and double. I end with 6264. To find the starting number use the inverse: halve, then add 409. Half of 6264 = 3132. 3132 + 409 = 3541. The starting number was 3541.

Multistep Problems

Using a Bar Model

The sum of two numbers is $25\,567$.

The difference is 1875.



Subtract 1875 from 25 567 = 23 692. Halve 23 692 to find smaller number = 11 846.

Add 1875 to find larger number = 13 721.

	£20	
£3.75	£8.49	?
C	C7 74	

£20 is used to buy 2 books costing £3.75 and £8.49.

£7.76 How much change is given?

£3.75 + £8.49 = £12.24 £20.00 - £12.24 = £7.76

Statistics										Knov	vledge Organise	
Key Vocabulary	Reading and Understanding Tables			Completing Tables								
axis	A table to show ticket prices at a		Here is a table showing the favourite drink flavours of some children.									
continuous data	local	cinema.							Boys	Girls	Total	
horizontal)range		8	Girts	18	
data		cket Week upe Pri		Weekend Price			ckcurrant		O .	6	10	
interpret		J1	ce				Total		15	U		
label	Ad	dult £	6	£7.50			Total		15			
line graph	Cł	hild £	4	£4.50		-			•	or blackcurrant,		
maximum value	Stu	dent £5.	50	50 £6			,	ys wh	o voted an	d subtract the r	number of votes	
minimum value	In order to understand the data					for orange.						
pattern	presented in a table, you must read the table's title and the headings.				To find how many girls voted for orange, look at the total number of votes for orange and subtract the number of votes from boys.							
predict												
relationship	Remember to always look at the				he	To find the total number of votes for blackcurrant, the total number						
represent	heading that each piece of information			on	of girls or the total number of voters, simply add up the values from							
scale	falls u	ınder.					the appropriate row or column.					
survey	1											
table	Timet	Timetables										
tally	Horo i	s a bus timeto	abla									
timetable	пегец	s a bas timeti	ubie:	Thre	e diff	erent bus	ses					
vertical	1								T l 1	and a set that a standard		
x-axis	ក្ស	Mill Road	C	726			0842		ine bus sto	arts at this time a	na location.	
y-axis	1 2 2	High Street		729		803			The bus do	es not stop here.		
-		Pitsmoor Road		759		833			The hus te	rminates at this ti	me and location	
		Fulwood	C	845	0	919	0946		THE DUSTE	minutes at titls ti	inte ana tocation	

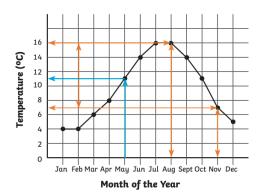
Statistics Knowledge Organiser

Read and Interpret Line Graphs

Here is a line graph showing the average temperature for each month.

The y-axis shows temperature in intervals of 2°C on a scale of 0°C to 16°C.

The points show the average temperature for each month.



The x-axis shows the months of the year.

Use Line Graphs to Solve Problems

To find the average temperature in May, follow the arrow up from May and across to the temperature. As this is halfway between 10°C and 12°C, the average temperature in May is 11°C.

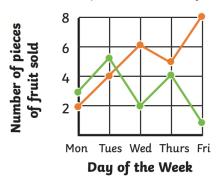
To find the difference between the average temperatures in August and in November, find the temperature for each month and calculate the difference between the two. The shape of the line graph can show how the temperature changed. he average temperature falls 9°C from August to November.

Draw Line Graphs

Here is a table showing the number of different types of fruit sold each day.

	Bananas	Apples
Mon	2	3
Tues	4	5
Wed	6	2
Thurs	5	4
Fri	8	1

This graph can be used to represent the data from the table.



Mark each point for the number of bananas sold each day and join each point with a line.

Mark each point for the number of apples sold each day and join each point with a line.

Multiplication an	d Division	Knowledge Organiser			
Key Vocabulary	Factors	Prime Numbers			
multiply	A factor is a number that divides into another number exactly without leaving a remainder.	1 2 3 4 5 6 7 8 9 10			
groups of	A common factor is a factor of 2	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30			
lots of	or more numbers.	31 32 33 34 35 36 37 38 39 40			
times	1 2 4 5 10 20 2	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60			
divide	The factors of 20 are 1, 2, 4, 5, 10 and 20.	61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80			
share	The factor pairs are: 1 and 20 2 and 10 5	71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90			
remainder	4 and 5 Factors of 15	91 92 93 94 95 96 97 98 99 100			
factor	Squared ² and Cubed ³ Numbers	Related Calculations			
multiple		8 × 9 = 72 9 × 8 = 72			
product		80 × 9 = 720 90 × 8 = 720			
	$2^2 = 4$ $2^3 = 8$ $5^2 = 25$ $5^3 = 125$	72 ÷ 9 = 8			
	2 × 2 = 4	720 ÷ 9 = 80			
	I				

Multiplication and Division

Knowledge Organiser

Short Multiplication

Long Multiplication

$$2543 \times 7 = 17801$$

	2	5	4	3
×				7
1	7	8	0	1
1	3	3	2)-	

Remember to move any regrouped digits into the next column. After the next multiplication, add the regrouped number to the answer.

$2543 \times 67 = 170381$

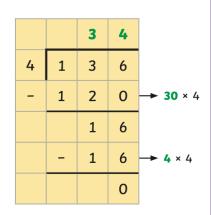
		2	5	4	3
	×			6	7
	1	7	8	0	1
1	5	2	5	8	0
1	7	0	3	8	1
	1	1			

Before multiplying by the number in the tens column, remember to use zero as a placeholder because the 6 in 67 is 6 tens (60).

Division

Short Division

$$136 \div 4 = 34$$





15 ÷ 4 = 3 remainder 3

Remember to regroup any remainders and move them into the next column.



 $28 \div 5 = 5$ remainder 3

If your calculation has a remainder, remember to record it in the answer using the letter **r**.

Perimeter and Area	1	Knowledge Organiser
Key Vocabulary	Measure Perimeter	Calculate Perimeter
metre	Measure the perimeter of a rectangle:	Calculate the missing sides of this rectilinear shape to find the perimeter:
kilometre	w	2cm
perimeter	l Measure the length (l) and width (w). Perimeter = l + w + l + w or (l + w) × 2	8cm 4cm 7cm
length	Measure the perimeter of regular shapes: Measure the length (l) and	missing side 1
width	count the number of sides (s) on the shape.	* This shape is not drawn to the dimensions specified.
rectangle	Perimeter = l × s Measure the perimeter of irregular shapes:	Missing side 1 + 4cm = 8cm, so missing side 1 = 4cm.
rectilinear		Missing side 2 = 2cm + 7cm = 9cm
dimensions		Perimeter = sum of all sides = 2cm + 4cm + 7cm + 4cm + 9cm + 8cm = 34cm
	Measure the length of each side and add them together.	

Length and Perimeter

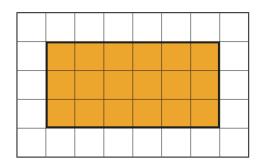
Knowledge Organiser

Area of Rectangles

Area of Compound Shapes

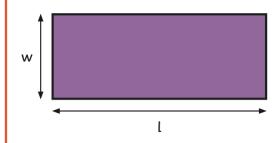
Area of Irregular Shapes

The area of a rectangle on a grid:

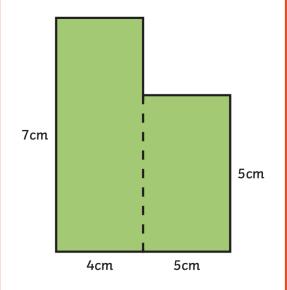


Multiply the length \times width $= 6 \times 3 = 18$ squares.

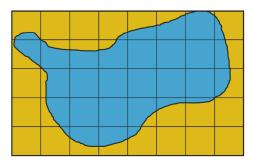
The area of a rectangle = length (l) \times width (w).



To find the area of a compound shape, divide the shape into rectangles with known dimensions:



Area = $7cm \times 4cm + 5cm \times 5cm$ = $28cm^2 + 25cm^2$ = $53cm^2$ To find the area of an irregular shape, find the number of whole squares and part squares.



Whole squares = 10 Part squares = 22

Estimate of area = whole squares + half part squares

 $= 10cm^2 + 11cm^2 = 21cm^2$

*There are other ways to estimate the area of irregular shapes.