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Whole Numbers and Place Value



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Series Author:

Nicola Herringer

Whole numbers – reading and writing numbers to 999

Ŵ	/e r	read and write numbers	in the order th	at we say the	m.	
		Hundree	ds Tens	Ones		
		7		5		
		seven hund	dred a	nd fifteen		
1	Μ	atch the numbers with th	e words.			
	а	848	nine hundred	and ninety-th	ree	
	b	327	eight hundred	d and forty-eigl	ht	
	С	901	three hundre	d and twenty-s	seven	
	d	993	nine hundred	and one		
2	Cr	eate a table of 3-digit	Hundreds	Tens	Ones	
	nu 3 1	imbers by rolling a die times. For example if	4	5	2	
	yo th	ou rolled a 4 then a 5 en a 2 vou would write				
	it	in the table like this:				
	а	What was the largest nun	nber that you m	nade?		
	b	What was the smallest nu	umber that you	made?		
	С	Write each of these numb	pers in words:			
3	Fig	gure out the number from	the clues:			
	a	There is a 6 in the hundre	eds column, a 2	in		
		the tens column and a 1 i	n the ones colu	mn.		
	b	There is an 8 in the tens of hundreds column and a z	column, a 3 in th ero in the ones	ne column.		



1

Whole numbers – reading and writing numbers to 999

Are the following statements true or false (T or F)?

Sta	atement	True/False
а	six hundred and twenty-one = 621	
b	five hundred and two = 520	
с	eight hundred and fifty-two pounds = £852	
d	two hundred and three pounds = ± 230	
е	nine hundred and ninety-nine = 991	
f	one hundred and five = 105	

Complete this crossword by writing the digits:



Down

- 1 Four thousand, eight hundred and thirty-six
- 2 1 less than 8,650
- 3 Nine hundred and thirty-six
- 4 2,200 plus 9
- 7 Four thousand, four hundred and fifty-six
- 10 Three thousand, two hundred and forty-five
- **11** 1 less than six hundred and forty
- **13** Nine hundred and sixty-two
- 16 Thirty-four

Across

- 1 Four thousand, six hundred and eighty-two
- 3 Number before 926
- 5 Seven hundred and thirty-two
- 6 Three thousand, one hundred and forty-four
- 8 Add 6 to 600
- 9 Nine hundred and forty-three
- 12 1 less than 530
- 14 Thirteen
- **15** Six thousand, four hundred and sixty-three
- 17 7 less than 700
- 18 Five hundred and twenty-four



Some of these clues are about 4-digit numbers. 4-digit numbers are in the thousands.



When we place numbers in order, we need to look carefully at the position and the value of each digit. Are these numbers in the right order?

345, 354, 453, 534

We are now going to practise working with numbers up to 1000.

Here is a section of a hundred chart. Complete the missing numbers:

221	222	223		225	226	227	228	229	230
231	232		234	235	236		238		240
241		243	244	245	246		248	249	250
251	252	253	254		256	257	258	259	260
	262		264	265	266	267	268	269	270

2 Imagine this chart continued into the 300s. Complete the missing numbers from these parts:



Whole Numbers and Place Value

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TOPIC

Whole numbers – ordering numbers

4 Think about the position of the numbers on the number lines.

a Draw a line to connect the number in the box to where it sits on the number line:





Whole Numbers and Place Value

Whole numbers – create and compare numbers

W	/he	n we	com	npare n	umbe	ers w	e use	e these	syn	nbols	:	>				
	Т	his sy	ymbo	ol mear	ns is l	ess t	han.	Th	is sy	mbol	mear	ns is gro	eater	· (mo	re) th	an.
	24 is less than 45															
	24 is less than 45 We can use the symbol < to show			V	We	can	use th	ne sym	ibol :	> to s	show					
				24 < 4	an. 15						m	ore tha 54 > 27	an. 7			
1	Us	e the	e corr	rect < o	r > sy	mbol	to co	onnect	thes	e nun	nbers	:				
	а	26		41	b	94		89	С	104		106	d	962		991
	е	397		372	f	722		728	g	442		440	h	87		266
2	Mi	tch v	vrote	these	numb	er se	nten	ces. Are	e the	ey cor	rect?	Tick or	cros	s the	em.	
	а	614	> 6	87		b	61	< 90				c 703	> 54	1		
	d	532	< 8	88		e	889	9 > 999)		1	f 206	< 26	50		
3	Us Us	e the e the	ese n e sym	umbers bols < d	to w or >:	rite s	ome	numbe	r ser	ntenco	es foll	lowing	the o	direc	tions.	
		$\left(\right)$	31	4	2	250)	720		$\left(\right)$	567	\supset	4	12)	
	а	Writ	e thr	ee grea	ter th	an ni	umbe	er sente	nces	:						
	b	Writ	e thr	ee <i>less</i> :	than ı	numb	er se	entence	s:							
	b	Writ	e thr	ee <i>less</i> :	than I	numb	er se	entence	s:							

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Whole numbers – create and compare numbers

4 Use these digits to create the following numbers:



- **a** A 3-digit number with a 5 in the tens place.
- **b** A 3-digit number that has an even number in the ones place.
- c As many numbers as possible that fall between 500 and 800.
- d The smallest 3-digit number.
- e The largest 3-digit number.
- **f** As many numbers as you can where the thousands digit is smaller than the hundreds digit and the hundreds digit is greater than the ones digit.



Whole numbers – writing numbers to 100 as words

Draw lines to match the numbers to the words:



2

Write the following numbers as words:





7

Whole numbers – odd and even numbers

E\ ea	ven numbers can be divided qually into 2 groups.										-
0	dd numbers cannot.					Ó					0
\subseteq											
1	Colour the even number	0	1	2	3	4	5	6	7	8	9
	squares orange and the	10	11	12	13	14	15	16	17	18	19
	oud humber squares green.	20	21	22	23	24	25	26	27	28	29
							•••••				
2	2 Complete these statements:										
	a Even numbers have a,	/	,		or_	iı	n the	ones	plac	e.	
	b Odd numbers have a				or	in	the	onec	nlace	2	
		, _	······································			II					
3	Place any even numbers in the	boxes	and	add:							
	a b]						
]		How : odd n	should umber	I share of swe	ean ets?	
	+	+				Ň		Y-	$\overline{\checkmark}$		
					-		9				
4	Place any odd numbers in the t	ooxes	and a	dd:	_		F	Ŋ	Ŕ		
	a b						C	Í	E		
	+	+						THIN	IK		
					-						
		······				······		······			······
5	Place even numbers a in the top row of			b					С		
	boxes and odd				₊「				+		
	numbers in the <u>'</u>			-					•		
	boxes and add:			-							
	Whole N	lumbe	ers an	d Pla	ce Vo	lue					
8		Commin									

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Whole numbers – odd and even numbers

Circle one answer in each sum:



Each player declares if they will be either 'odds' or 'evens'.

After the count of 3, at the same time, each player opens one hand and holds out 1 or more fingers.

If the total number of fingers is equal to an odd number, the player who is odds wins. If the total number of fingers is an even number than the player who is even wins.



9



apply



This is a game for 2 players. All you need is some paper and a pencil.





Pupils take turns writing a number sentence with an answer that is odd or even. Each correct number sentence scores 5 points. Player 1 plays for odd numbers and Player 2 plays for even numbers.

Player 1 must use any of the numbers between 1 and 11 and any of the 4 operations to get an answer that is an even number. Cross out used numbers so you can see what is left. Here is an example:

Player 1 who is playing for evens: $2 \times 3 = 6$

Player 2 then uses Player 1's answer (6) and unused numbers to get their odd number: 6 + 5 = 11

Player 1 who is playing for evens uses Player 2's answer: 11 + 7 = 18 and so on until all the numbers have been used.



Player 1	Odds	Points	Player 2	Evens	Points



Odd and even race



do next

This is a game for 2 players. You need the game board below, 2 markers and a die.



Play again with 2 dice and add the numbers.



Counting – counting in 100s



Pea seeds come in packets of 100. Write how many seeds you would have in total if you had the following number of packets:



I am

l am

- **b** You say me when you count in 100s. I am 300 more than 200.
- **c** You say me when you count in 100s. I am the 5th number you say if you count back from 800.



Counting – counting in 50s

Counting in 50s is similar to counting in 5s. Can you see the pattern and fill in the missing numbers?



Biscuits coe in packets of 50. Write how many biscuits you would have in total if you had the following number of packets:







Counting – 10 more or less

When you find 10 more you are adding 10 to a number. When you find 10 less you are taking 10 away. What happens to the digits?



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Counting – 100 more or less

Counting in 100s is the same as adding 100 each time of finding 100 more. Finding 100 less than a number is the same as subtracting 100 or counting back in 100s. When you count in 100s, which digit changes? 100 200 300 **4**00 500 **6**00 700 800 **9**00 How about if you don't start at a multiple of 100? **2**42 **3**42 **5**42 **1**42 **4**42 **6**42 **7**42 **8**42 **9**42 The 100s digit goes up one for 100 more and down one for 100 less. The other digits normally remain the same. Write the numbers that are 100 more and 100 less than. 500 b 367 а 766 605 d С 818 f 111 e Work out the answers to the following problems: **a** Joe has 321 marbles. Charlie has 100 less than Joe. How many marbles does Charlie have? **b** True or false: 100 more than 123 is 213. c Sara has 646 sweets. Yesterday she gave 100 to Alex and 100 to Steve. How many sweets did she have to start with? **d** True or false: £100 more than £248 is the same as £100 less than £448. Sometimes the thousands digit will also change when we find 100 more or 100 less. The hundreds digit changes when we find **a** What is 100 more than 995? 100 more or 100 less. **b** How about 100 less than 2007? **c** Write you own example of a number that will change its hundreds and thousands digit when we add 100.

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Place value of whole numbers – place value to 4 digits

We can show the value of a 4-digit number on an abacus and also with base ten blocks.



- 1 is worth 1000 or one thousand.
- 2 is worth 200 or two hundreds.

5432

5343

4524

4388

- 3 is worth 30 or three tens.
- 2 is worth 2 or two ones.

Below are 4 different numbers written in 3 different ways. Find the 3 that match and colour them the same:

Thousands	Hundreds	Tens	Ones
5	4	3	2
5	3	4	3
4	5	2	4
4	3	8	8

Five thousand, four hundred and thirty-two

Four thousand, five hundred and twenty-four

Five thousand, three hundred and forty-three

Four thousand, three hundred and eighty-eight

Write the number shown on each abacus:





Whole Numbers and Place Value



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ΤΟΡΙΟ

Place value of whole numbers – expanded notation



Whole Numbers and Place Value

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TOPIC

Place value of whole numbers - expanded notation

Here are some place value cards stacked in different ways.



Write each of the numbers shown on the place value cards.



e Which number has 25 hundreds, 6 tens and 7 ones?

Complete each row of the table like the first row:

			- 83 could also be
Numeral	Expanded notation in numbers	Expanded notation in words	described as 83 ones and 540 could be called 54 tens.
592	500 + 90 + 2	59 tens and 2 ones	
	600 + 70 + 8		
		7 hundreds and 14 ones	
6703		67 hundreds and ones	SPZ
		46 hundreds and 6 ones	
2018		2 thousands and 18 ones	THINK



Place value of whole numbers – digit value

The place of a digit within a number determines its value. Answer these place value questions: The digit in the ones place is а The digit in the thousands place is 1932 The digit in the tens place is The digit in the hundreds place is The value in the digit 4 is b The value in the digit 2 is 4320 The value in the digit 3 is The value in the digit 0 is True or false: С The value of the digit 8 is 8000. The value of the digit 9 is 9. 8709 The value of the digit 7 is 70. There are 0 hundreds. How many hundreds? d How many tens? 5086 How many thousands? How many ones?



Place value of whole numbers – exchange



Practise exchange by adding the amount to each place value board. Draw the amount to be added on the first board and show it regrouped on the next board. Write the answer in the top box. The first one has the amount to be added drawn on to show you.

a 17 more **Hundreds** Tens Hundreds Tens Ones Ones ſ Ø °_ Ø 1

b 80 more

Hundreds	Tens	Ones	Hundreds	Tens	Ones

c 27 more

		1	1	1		·
Hundreds	Tens	Ones		Hundreds	Tens	Ones





Place value of whole numbers - exchange

Balance the scales by writing the digits that make both sides the same:





Race to 100

apply



This is a game for 2 to 4 players. Your group will need a die and some hundreds, tens and ones Dienes blocks. Each player will need a copy of the game board below.





Each player rolls the die to see how many shorts they may take from the pile in the centre. Take turns rolling the die and collecting shorts. When you have 10 shorts you can exchange them for 1 long. When you have 10 longs you can exchange them for a flat. The winner is the first person to get a flat on their game board.

Hundreds (flats)
Tens (longs)
Ones (shorts)



23

Place value bingo

This is a game for 3 to 6 players. You need to copy this page and cut out the cards below.



apply



Getting

ready

Choose a player to be the caller. The rest of the players each write a list of six 4-digit numbers. The caller calls out one card at a time and declares which column the number is in. For example, the caller might draw a card with 8 on it and say, '8 in the hundreds place'. If a player has an 8 in the hundreds place in one of their numbers, they circle that digit. The caller keeps drawing cards and saying the digit's place value until one of the players has circled all of the digits in one of their numbers. This player wins the round. Swap roles and play again until each person has had a turn at being the caller.

1	2	3	4	5
6	7	8	9	1
2	3	4	5	6
7	8	9	1	2



Whole Numbers and Place Value

Round and estimate – rounding to 10 and 100





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Round and estimate – rounding to 10 and 100





26

599

Round and estimate – estimating

When we estimate, we are making a sensible guess. Estimation is very handy when you want to check your work. Look at these cakes. We can estimate the total number of cakes by circling a sample group of cakes and counting the groups.



Estimate the number of objects in each set below. Circle a sample group and count the groups.





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TOPIC

Round and estimate – estimating

2 Estimate how many pots will be needed for this pile of pencils. Count the number of pencils in the pot. Use this number as the sample to estimate.



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TOPIC

Round and estimate – rounding to estimate



		Estimate of bill	Reasonable?	Laura's Lunches
а	Dylan bought stir-fry noodles and an orange juice.	£6	Yes / No	Salad sandwich £4.25 Pasty £2.20
b	Michelle bought a muffin and a pasty.	£6	Yes / No	Fish and chips £1.95 Fruit £ .60
с	Julia bought a bottle of water and fish and chips.	£9	Yes / No	Stir-fry noodles £4.95 Milkshake £1.55
d	Stef bought a salad sandwich and a piece of fruit.	£4	Yes / No	Orange juice £1.95 Bottle of water £2.15 Choc or
e	Marco bought hot chips and a slurpee.	£4	Yes / No	banana muffin £1.85

Colour the best answer in each addition:

3

а	56 + 31 =	60	45	99	86	107
b	88 + 61 =	200	148	130	500	340
С	123 + 45 =	138	198	165	118	579
d	760 + 52 =	810	800	900	780	761

Whole Numbers and Place Value



Round and estimate – rounding to estimate

4 Omar has just finished some work on addition using a calculator. Check his answers to see which ones are correct by rounding each number to the nearest 100 to get an estimate:

Addition calculation	Estimate by rounding	Remember an approximate answer is reasonable.
292 + 102 = 394		
399 + 212 = 711		
98 + 803 = 901		D.
310 + 201 = 511		
99 + 291 = 390		E
404 + 403 = 907		REMEMBER



- **a** 98 children went on an excursion to the zoo. If tickets cost £9.90 each, estimate how much it cost altogether.
- b Year 6 bought food, drinks and decorations for the end of year farewell. They spent £596 on food, £217 on drinks and £116 on decorations. Estimate how much they spent altogether.



- **c** Talia spent about £19.80 a day on her holidays. Estimate how much she spent on her 10 day trip.
- **d** Belle runs $4\frac{3}{4}$ km every day for a week. How far does she run after 1 week?



Round it!



This is a game for 2 players. You will need: a coin, 3 dice, counters in 2 different colours, scrap paper and this page.

- 1 Roll 3 dice and using the numbers as digits write down the largest number you can.
- 2 Toss a coin. If it lands on heads, round to the nearest 10.If it lands on tails, round to the nearest 100.
- **3** Place your counter if you see it on the grid.

The winner is the person with the most counters after 10 turns each.

200	700	620	410	700	630	650	220
100	670	440	500	600	200	640	610
560	520	300	640	250	510	540	160
630	320	240	700	530	200	110	650
250	550	660	650	310	640	430	640
660	210	670	640	540	210	600	220
500	400	640	420	630	670	550	600
300	540	530	300	400	360	520	500
620	520	700	650	620	660	550	330



