

My name



312 1312 1312 Whole Numbers and Place Value

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Series E – Whole Numbers and Place Value

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 Nicola Herringer
 • round it! – apply _____ / /

Whole numbers – reading and writing numbers to 9999

When we read numbers we go left to right:

Thousands	Hundreds	Tens	Ones
1	3	1	2

In words, this number is one thousand, three hundred and twelve. We write it like this 1312. We put a comma between the thousands digit and the hundreds digit.

Draw a line to match the number in words to the digits that match. The first one has been done for you.

а	Eight thousand, two hundred and twelve	7420
b	One thousand and sixteen	1016
С	Five thousand, one hundred and two	5102
d	Four thousand, five hundred and eighty-nine	4589
е	Seven thousand, four hundred and twenty	8212

Underline the numbers in the sentences below and then answer the questions.

- a In a game of darts, Matt scored four hundred and thirty-five points and Ellie scored five hundred and sixty-two points. Who scored more, Matt or Ellie?
- **b** Emily saved five thousand, six hundred and fifty-nine pounds while Libby saved five thousand, nine hundred and eighty-five pounds. Who saved more?

c Kim lives one thousand, eight hundred and forty-two km from

and sixty-two km from the same theme park. Who lives closer?

The last question is different to the first two. Can you see why?

Magic Land theme park. Mish lives one thousand, seven hundred





Whole numbers – reading and writing numbers to 9999

3

This is an exercise for one player that helps you to practise writing numbers.

Write the 4-digit number in words. Next, count the letters in the number – seven thousand, four hundred and sixty-five has 36 letters. Write 36 in the number column and so on until you get to four. This is a sample game: Now it is your turn:

Numeral	Numeral in words
7465	seven thousand, four hundred and sixty-five
36	thirty-six
9	nine
4	four

one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, ninety, forty, thousand, hundred, sixty, seventy, eighty.

Use the words in the box to help with spelling.



Numeral	Numeral in words
3987	

What number am I? Write the numbers described below in words:

a I am the number before 945:

b I am 1 less than 530:

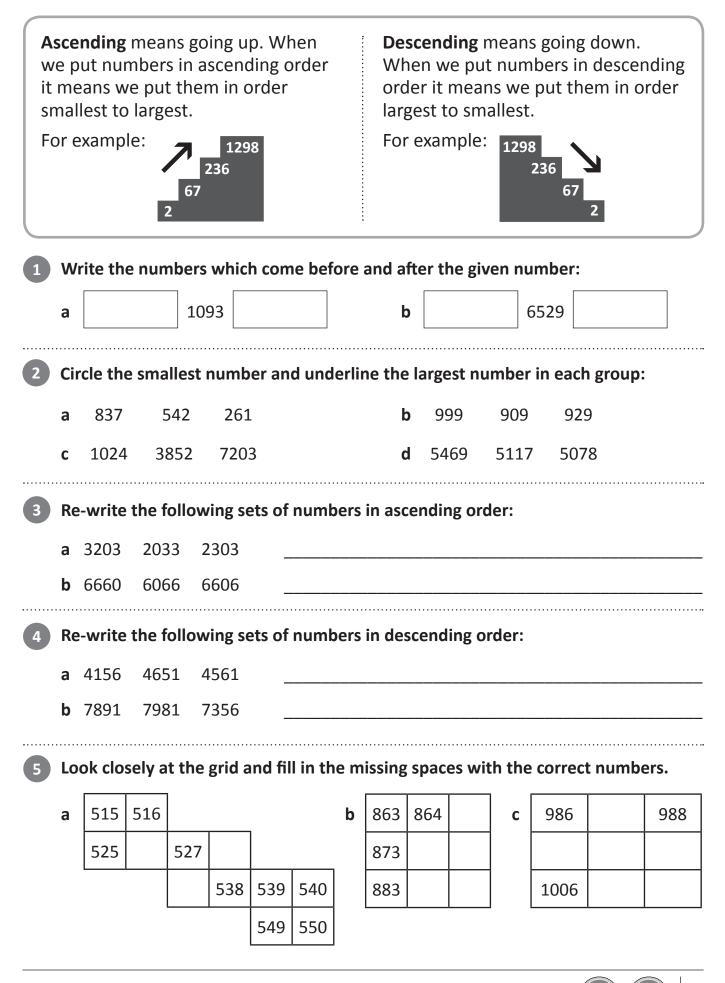
c I am 7 less than 700:

d I am 100 more than 6878:



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Whole numbers – ordering numbers to 9999



3

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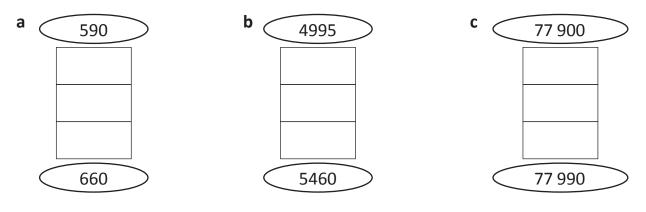
Whole numbers – ordering numbers to 9999

6 Here is a number square that goes up to 1000.

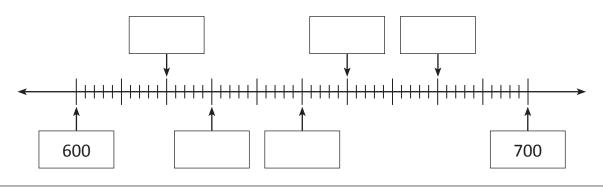
- **a** Look carefully at how the numbers go up. It is a skip counting pattern of ______.
- **b** Fill in the blanks:

1020304050607080901001101301401501601701801902002102302302260270280290300310330350360370380390400410420430445046047049050051052053055056044905006106206306406506606706907007107207307407507607707807908008108208308408508608708808909009109209309409509609709809901000										
2102302602702802903003103303503603703803904004104204304504604704905005105205305505601600610620630640650660670690710720730740750760770780790800810820830840850860870880890900	10	20	30	40	50	60	70	80	90	100
310 330 350 360 370 380 390 400 410 420 430 450 460 470 490 500 510 520 530 550 560 600 600 610 620 630 640 650 660 670 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900	110		130	140	150	160	170	180	190	200
410 420 430 450 460 470 490 500 510 520 530 550 560 600 600 610 620 630 640 650 660 670 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900	210		230			260	270	280	290	300
510 520 530 550 560 600 610 620 630 640 650 660 670 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900	310		330		350	360	370	380	390	400
610 620 630 640 650 660 670 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900	410	420	430		450	460	470		490	500
710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900	510	520	530		550	560				600
810 820 830 840 850 860 870 880 890 900	610	620	630	640	650	660	670		690	700
	710	720	730	740	750	760	770	780	790	800
910 920 930 940 950 960 970 980 990 1000	810	820	830	840	850	860	870	880	890	900
	910	920	930	940	950	960	970	980	990	1000

Look at each set of numbers and list some numbers that come between. Write them in order.



8 Look carefully at this number line and write the missing numbers.





Whole numbers – create and compare numbers

When we compare numbers we use these symbols:					
This symbol means is greater (more) than.	This symbol means is less than.				
124 is greater than 92 124 is > 92	5 is less than 54 5 is < 54				
1 Use the correct >, < or = symbol:					
a 203 172 b 3033	3033 c 572 615				
d 5690 5688 e 909	901 f 9009 9090				
2 Put a number in the box so the statement	is true:				
a > 6890	b > 603				
c > 1204	d > 8051				
3 Put a number in the box so the statement	is true:				
a 45 <	b 564 <				
c 7895 <	d 9984 <				
4 Use the correct > or < symbol to make the	number sentences true:				
a 15 14 16	b 98 1005 2010				
c 17 18 21	d 7586 528 29				

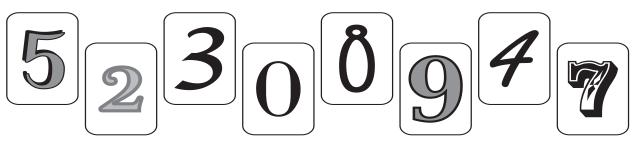
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Whole numbers – create and compare numbers

Use only one of each of these digit cards to:



- a Make four different 4-digit numbers.
- **b** Make the second largest 4-digit number possible. You can only use each digit card once.
- **c** Write a number between 4000 and 7000. You can only use each digit card once.
- **d** Make a list of odd 3-digit numbers.

• • • • • •	
6	ia's lucky number can be made from the digits above. Use these clues to work out
	/hat it could be:

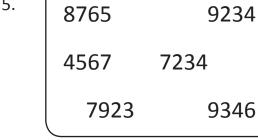
- It has 2 digits.
- It is an even number.
- It is greater than 55 but less than 60. Tia's lucky number is:

8975

Pick out Roger's lucky number from the clues. It is one of the numbers in the box.

- It is not less than 5000.
- It does not have 6 tens.
- The digit in the ones column is smaller than 5.
- It is an even number.
- It is less than 9000.

Roger's lucky number is:



6578



Whole numbers – counting in 1000s and 1000 more or less

Counting in 1000s is straightforward. For every 1000 you count on, you add 1000 and the thousands digit goes up one; for every 1000 you count back, you subtract 1000 and the thousands digit goes down. So, counting up in 1000s from 0:

1000	2000	3000	4000	5000	6000	7000
Counting ba	ack in 1000s	from 10 00	00:			
1000	2000	3000	4000	5000	6000	7000

To find 1000 more or less than any number, the process is the same. Just the thousands digit will go up or come down one. So, 1000 more than 3429 is 4429; 1000 less than 7237 is 6237.

1	Fill	in the gaps	s in these n	umber sequ	ences:			
	а	17 000		15 000	14 000		12 000	
	b	8702	9702			12 702		14 702
	С		22 314			19 314	18 314	17 314
2	Wr	ite the num	nber that is	1000 more	and less th	an each nui	nber:	
	а		4405		b		1090	
	С		37 737		d		50 050	
3	Wr	ite the num	nber that is	2000 more	and less th	an each nui	nber:	
	а		6830		b		2424	
	С		88 888		d [69 464	



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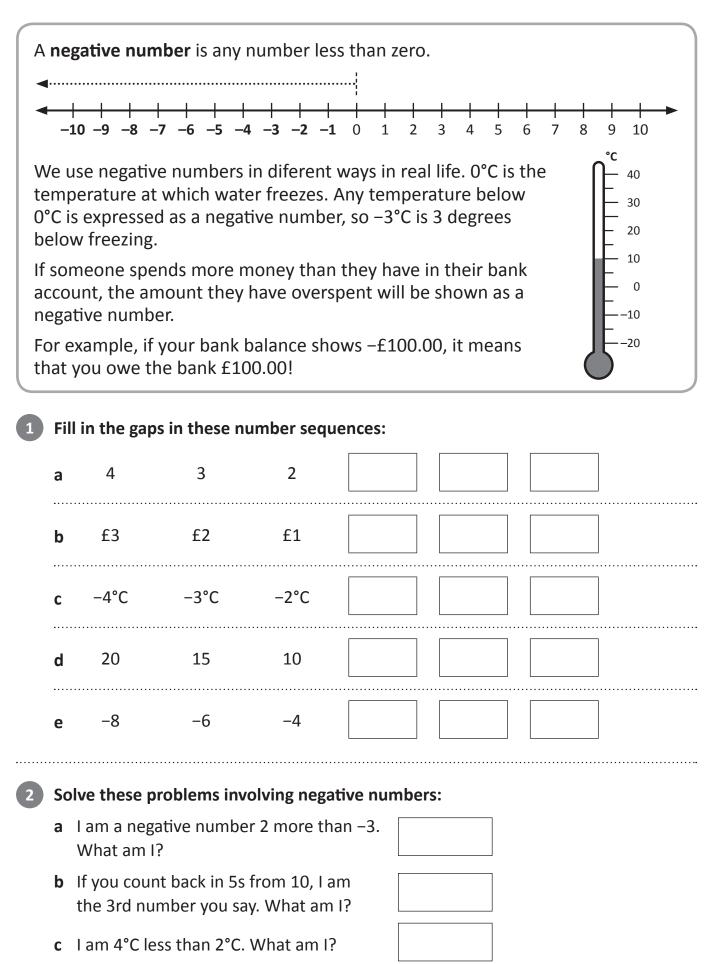
Whole numbers – counting in 25s

Look at this number sequence. The numbers are going up by 25 each time.								
Can	you see a	pattern?						
0	25	50 75	100	125 150	175 2	200 225	250 27	5 300
The t	tens and	always fo	ollow this	s sequence	e: 0 25	50 75		
	lealing w	count up a ith money.			•			•
£0	.25 £	0.50 £0).75 :	£1.00 :	£1.25	£1.50	£1.75	£2.00
1 Fil	l in the ga	aps in these	number	sequences	5:			
а	225		275	300		350	375	
b		875		825		775	750	
С	2075		3025		3075		4025	4050
2 W	rite the n	umber that	is 25 mo	ore and less	s than ead	ch number	:	
а		75			b		300	
C		1000			d		24 025	
3 W	rite the to	otal that is 2	25p more	e and less t	han each	amount:		
а		£1.00)		b		£32.75	
С		£199.	75		d		£6052.00	
8	(1)		Whole N	lumbers an	d Place V	alue		

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Whole numbers – negative numbers



E I I

9

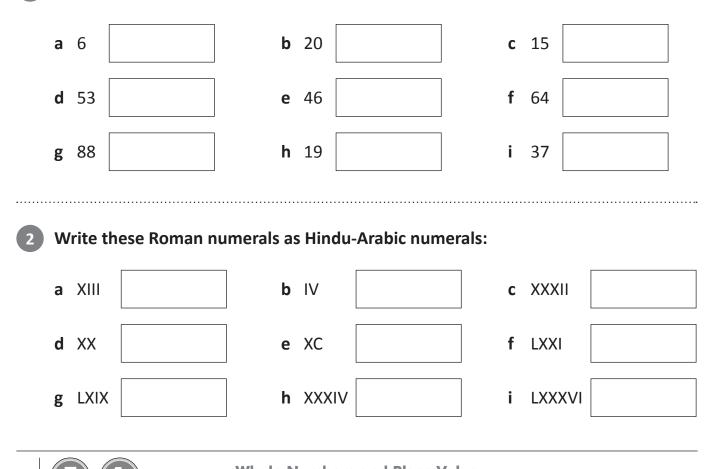
During the 16th century the **Hindu-Arabic number system**, which we still use today, became widely established in Europe. Before this, numbers were expressed using **Roman numerals**, but there were problems with this system. The main ones were that there was no zero and no system of place value, which made calculating difficult.

Occasionally, you will still encounter Roman numerals today. For example, on some old-fashioned clock and watch faces, for the dates at the end of TV show credits and for monarchs (Queen Elizabeth II is the second queen called Elizabeth, not the eleventh!). In the Roman system:

I = 1 V = 5 X = 10 L = 50 C = 100

All other number up to 100 can be shown using a combination of these symbols. Normally, to make a number you place the symbol for the largest component first, then add the smaller elements afterwards. So, 8 = VIII, 12 = XII, 25 = XXV and 63 = LXIII. The only exceptions are when you would have four of the same character in a row, in which case you put the smaller element in front of the larger to show 'less than'. For instance 9 is not VIIII but IX (that is, '1 less than 10'). Similarly, 40 isn't XXXX but XL ('10 less than 50').

Write these Hindu-Arabic numbers using Roman numerals:



Whole Numbers and Place Value

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My difference is greater

apply

COD

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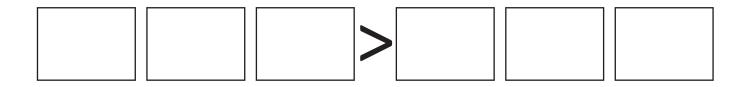
This is a game for 2 players. Each player will need the game board and a copy of the digit cards below to cut out.



Combine both players' digit cards, shuffle and lay face down in the centre. Each player draws 6 cards, and without looking at the digit cards, makes two 3-digit numbers laying cards down from left to right.

If the numbers are in the correct position (the number on the left is actually greater than the number on the right), the player writes down the difference as their score.

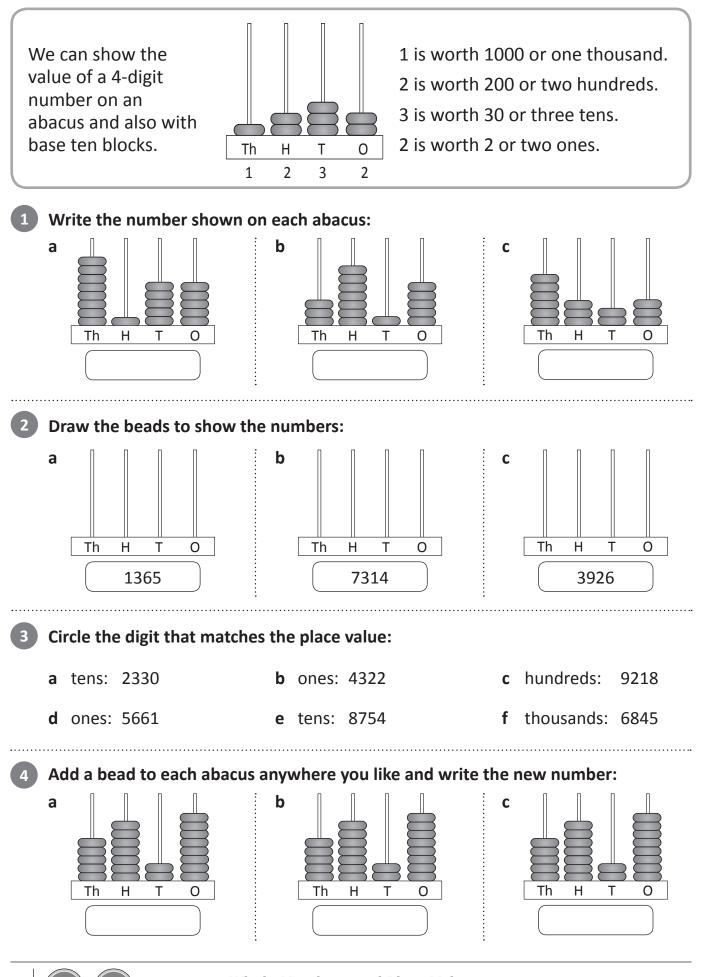
The winner is the player with the highest score at the end of the game.



Player 1	Player 2

·				\prec
1	2	3	4	5
6	7	8	9	1
2	3	4	5	6

Place value of whole numbers – place value to 4 digits



Whole Numbers and Place Value

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Place value of whole numbers – place value to 4 digits

5 In the table below, write as many 4-digit numbers as you can where the digit in the hundreds column is greater than the digit in the thousands column and the digit in the ones column is smaller than the digit in the tens column:

Thousands	Hundreds	Tens	Ones

6

Record the steps you follow to wipe out each digit and turn it into a zero:

8439

Wipe out the 3	
Wipe out the 9	
Wipe out the 8	
Wipe out the 4	
	Wipe out the 9 Wipe out the 8

Now play this game with a partner:

First choose a 4-digit number and write it here:

Enter this number in your calculator and then take turns subtracting any digit 1 to 9 from this number. This time you must avoid wiping out any digits (changing any to zero). If you do wipe out a digit on your turn, you are out. To win this game you need to keep your focus on the ones column!





Expanded notation is when we break a number down into its thousands, hundreds, tens and ones. For example, if we show 7346 using place value cards it looks like this: 3 4 6 If we then separate the cards we can clearly see the thousands, hundreds, tens and ones that make up the number: 3 0 0 7000 4 0 6 Write the number shown on each numeral expander: thousands hundreds tens 3 8 ones а 4 2 0 0 5 1 b 9 0 0 0 0 hundreds thousands С 4 0 7 5 tens ones 2 0 0 0 3 0 d 6

Complete each row of the table like the first row:

Numeral	Expanded notation in numbers	Expanded notation in words	83 could also be described
4672	4000 + 600 + 70 + 2	46 hundreds, 7 tens and 2 ones	as 83 ones and 540 could be called 54 tens.
	5000 + 200 + 30 + 9		
		61 hundreds, 4 tens and 2 ones	
3180		31 hundreds and tens	5-37
		35 hundreds and 6 ones	
	8000 + 200 + 50 + 8		THINK



Place value of whole numbers – expanded notation

3	Rename the following num	bers in hundreds:		
	a 4100	b	9800	
	c 6700	d	4500	
4	Rename the following num	bers in tens:		
	a 5560	b	8880	
	c 4570	d	8970	
5	Write the following amoun	ts as numerals from	n the box:	
	a 32 hundreds, 9 tens and	2 ones		4107
	b 4 thousands, 6 hundreds	s, 1 ten and 2 ones		8672
	c 8 thousands, 67 tens and	2 ones		4612
	d 41 hundreds and 7 ones			3292
6	Balance the scales by writi			
	Renaming numbers is sometimes called regrouping. The number has the same value though.	3 21 9 H T 0		
	b	6 20 3 H T O		

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Place value of whole numbers - working with place value

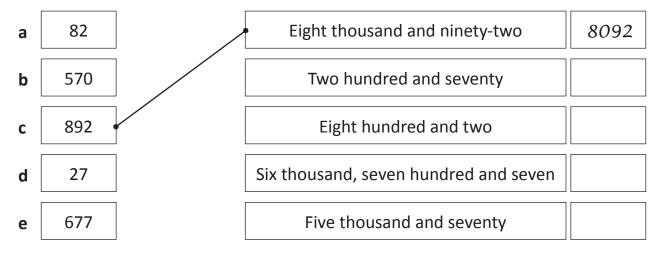
Zero plays an important role in numbers. It tells us that the value of the column is nothing and holds the place of other numbers.



Write these numbers:

- **a** Four thousands, six hundreds, zero tens and 1 unit.
- **b** Two thousands, zero hundreds, zero tens and zero ones.
- c Six thousands, three hundreds, 1 ten and zero ones.
- **d** Two thousands, zero hundreds, 6 tens and zero ones.
- e Ten thousands, nine hundreds, zero tens and zero ones.

2 A zero has been added to each number in different places. Match them to a number in the box and write this number in figure. The first one has been done for you.



3 Record the steps you followed to change:

- a 567 to 507 by taking away one number.
- **b** 2093 to 2100 by adding one number.
- c 760 to 60 by taking away one number.
- **d** 997 into a 4-digit number.





Place value of whole numbers – working with place value

4

5

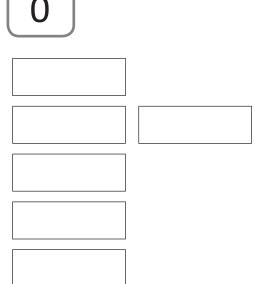
Use these digits to make the following 4-digit numbers:







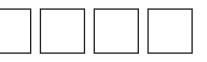
- **a** A number with 7 in the hundreds place.
- **b** Two numbers with 0 in the ones place.
- c One number that has 71 tens.
- **d** A number that has 87 tens.
- **e** A number that has zero as a place holder.



Help these kids remember their special numbers:

a Charlie needs a password to access his computer. The password includes the digits 5671. It is the smallest odd number.

What is the password?



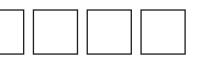
b Bec needs to withdraw money from the bank but she can't remember her PIN.
 The password includes the digits 3398. It is the largest even number.

What is her PIN?



c The alarm is ringing in Frankie's house and she needs to remember the code to switch it off. She knows the numbers include 5927 and that it begins with 9. It is the second largest number.

What is the alarm code?



d Max recently changed the combination to the lock on his games cupboard. The combination includes the digits 6119. It is the second smallest number.

What is the combination to the lock?

_				
1				



Digit decisions

apply

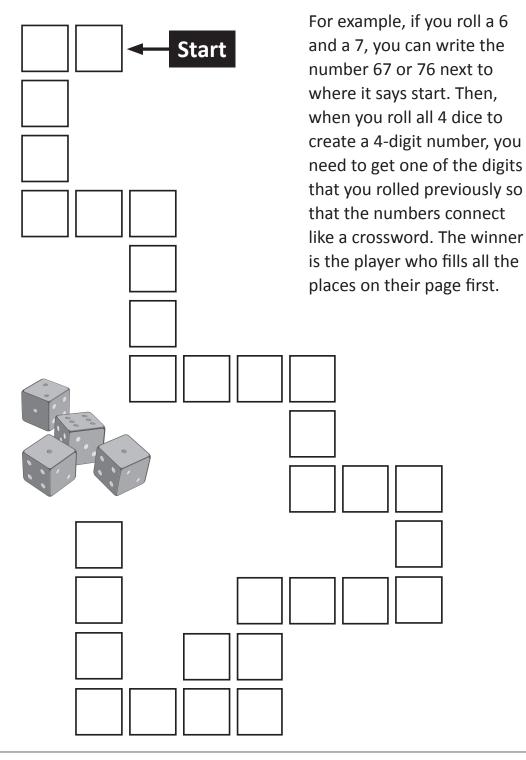


This is a game for 2 players. You will need a copy of this page and a set of 4 dice.





Each player takes turns rolling the dice and writing one digit in each box where they will fit. You might roll 2 dice, 3 dice or 4 dice, depending on the squares.





Wiped out

Getting

ready

This is a game for 3 players. You will need a copy of this page and the cards (below) cut out.



apply



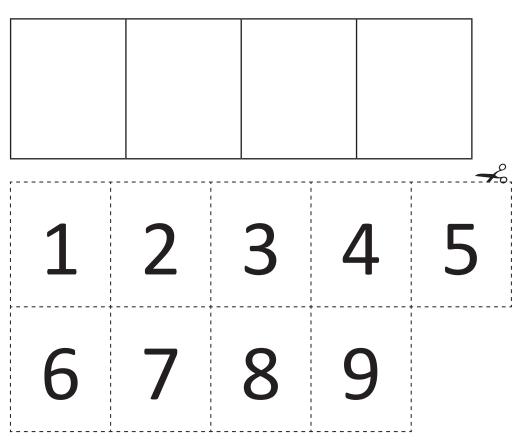
1 person is the caller and the other 2 are the players.

The caller turns over a digit card and announces the number. Each player finds the same digit card and places it in one rectangle in the place value table. Repeat this until each player (including the caller) has a 4-digit number. The caller then reads out their number.

The player who gets a higher number than the caller scores 5 points. If a player has the same number as the caller, they score 3 points. If a player has a lower number than the caller, they score 1 point. If the caller's number is higher than both the players, they score 10 points.



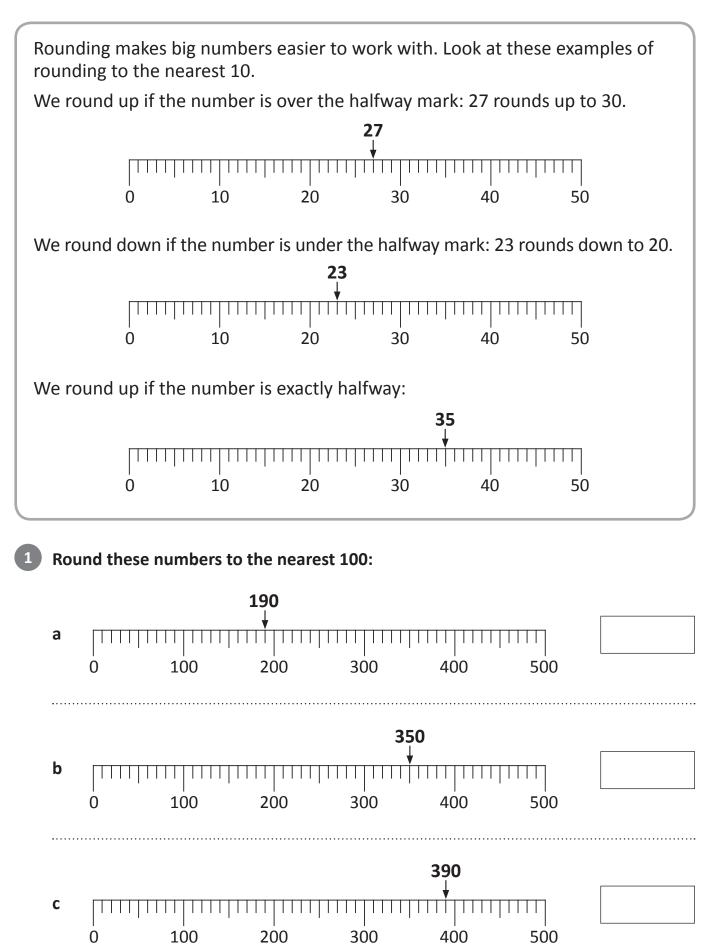
Swap roles. Keep playing until each person has had a turn of being the caller. Add up points at the end to find the overall winner.



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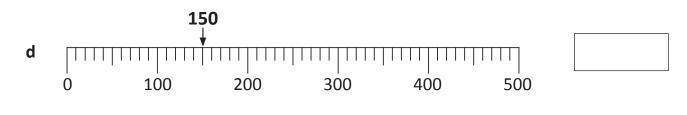
Round and estimate – rounding to 10, 100 and 1000





Round and estimate – rounding to 10, 100 and 1000

Round these numbers to the nearest 100 (continued):



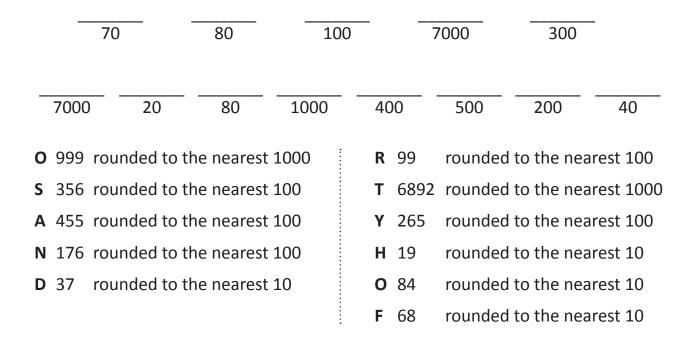
Round these according to the table directions. The first one has been done for you.

Number	Nearest 10	Nearest 100	Nearest 1000
567	570	600	1000
673			
287			
527			
970			

4

Find the number by rounding the numbers:

The number of teeth that a shark has in its lifetime



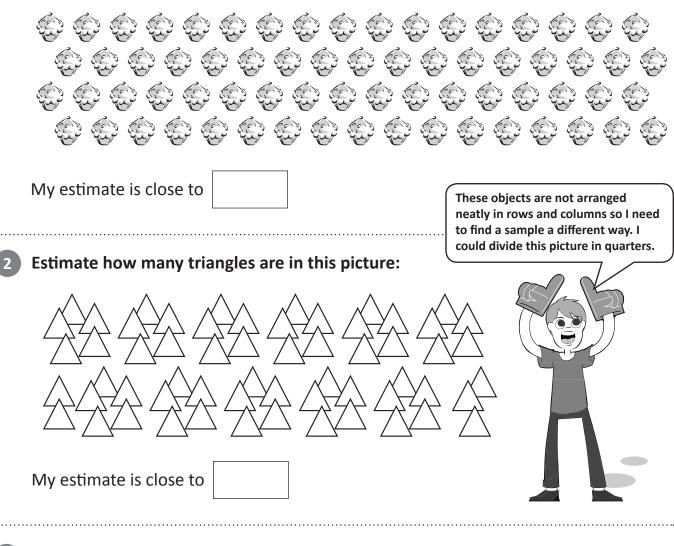


Round and estimate – estimating

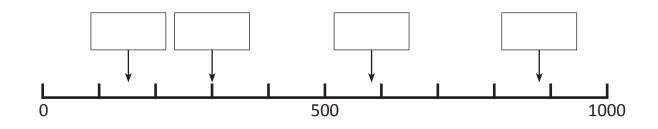
Estimation is a very useful skill. It is used every day by all sorts of people.

Estimation is not just guessing, it is a way of doing a sum in your head. A good estimate is a reasonable answer, not just a wild guess.

Estimate the number of cakes below. Start by looking at a sample – the number in one group, then estimate. Try not to count.



Estimate the numbers that could be located at the marked points.





Round and estimate – estimating

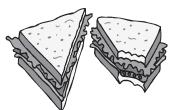
- Estimate how many holes you can make using a hole punch. Fold a piece of A4 paper in half and in half again. Punch some holes a few times. Unfold the paper. Estimate the number of holes.
 - **a** Write this number here.

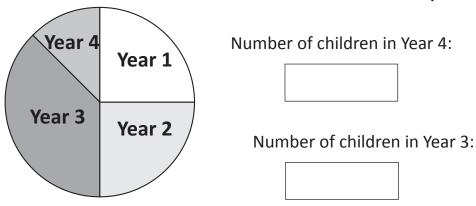
b How did you make this estimate?

Try these estimation problems:

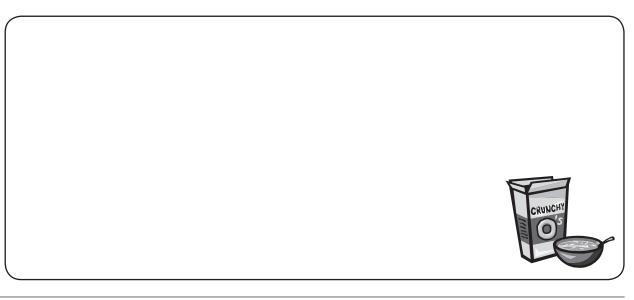
5

a This pie chart shows the approximate number of children who get lunch orders every day. If there are 20 children in Year 1, estimate the following:





b Jake wanted to find out how many sultanas there were in a box of cereal. Counting every sultana would take too long. Instead, he scooped a cupful of cereal out into a bowl and counted how many sultanas were in the cup. What did he do next?



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Rounding is a very useful skill for doing mental calculations.

Look at this example:

Lily went to the shops to buy her friend a birthday present. She had saved up £10 of her pocket money. She picked out wrapping paper for £1.85 and a card for £1.10. Lily saw 2 things that her friend would like. One was a book for £7.90. The other thing was a pencil set for £6.15. She could not decide which one to buy – she did not have enough for both presents. Which present do you think Lily bought, as well as the wrapping paper and card?

Luckily, Lily used her rounding skills as the shop assistant was getting very impatient. This is what she did:

To find the total of the wrapping paper and card:

£1.85 rounds up to £2.

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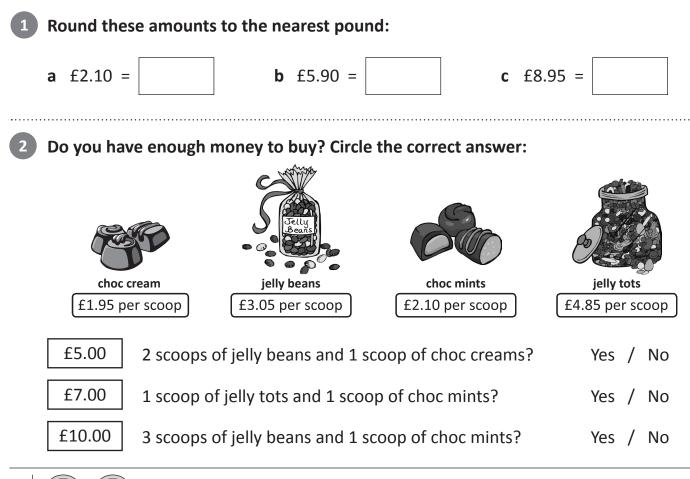
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£1.10 rounds down to £1. Total is £3.

Option 1: Book for £7.90 rounds up to £8. £8 plus £3 is £11.

Option 2: Pencil set for £6.15 rounds down to £6. £6 plus £3 is £9.

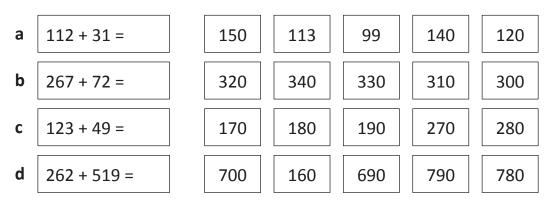
Lily chose to buy her friend the _____



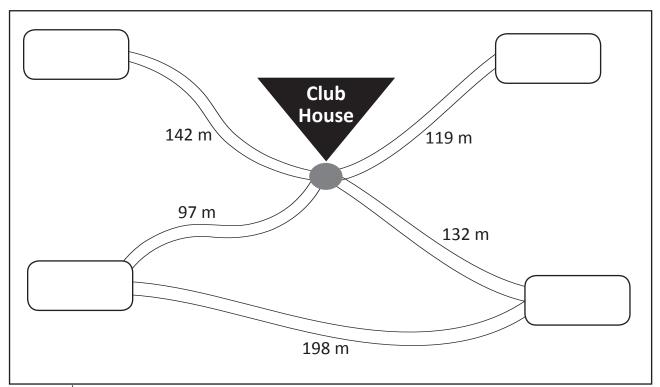
Whole Numbers and Place Value

Round and estimate – rounding to estimate

Round each number and add. Shade the most reasonable answer for each sum:



Here is a map of a club house. See if you can label the places correctly. Use the clues below. The places are: cafe, gazebo, tennis courts and pool.





4

Use these clues in order:

• Rounded to the nearest 10, the cafe is 120 metres away from the club house.



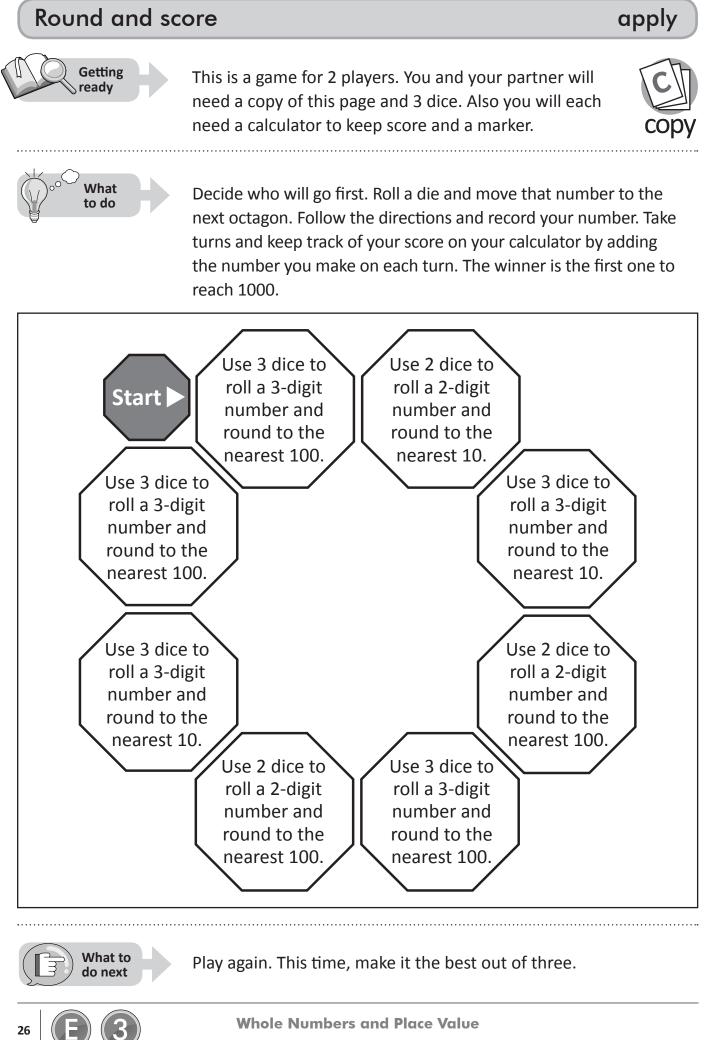
• Rounded to the nearest 10, the pool is 140 metres away from the club house.



• Rounded to the nearest hundred, the distance from the club house to the gazebo is 100 metres. This distance is an odd number.



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SERIES

TOPIC

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 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 on the number, if you see it on the grid.

The winner is the person with the most counters on the grid 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

