

Reading and Understanding Whole Numbers

My name _____



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Series Author:

Nicola Herringer

Looking at whole numbers – reading and writing numbers to 999

We read and write numbers in the order that we say them.

Hundreds	Tens	Units
7	1	5

seven hundred and fifteen

1 Match the numbers with the words.

- a 848 nine hundred and ninety three
- b 327 eight hundred and forty eight
- c 901 three hundred and twenty seven
- d 993 nine hundred and one

2 Create a table of 3 digit numbers by rolling a die 3 times. For example if you rolled a 4 then a 5 then a 2 you would write it in the table like this:

Hundreds	Tens	Units
4	5	2



- a What was the largest number that you made?
- b What was the smallest number that you made?
- c Write each of these numbers in words:

3 Figure out the number from the clues:

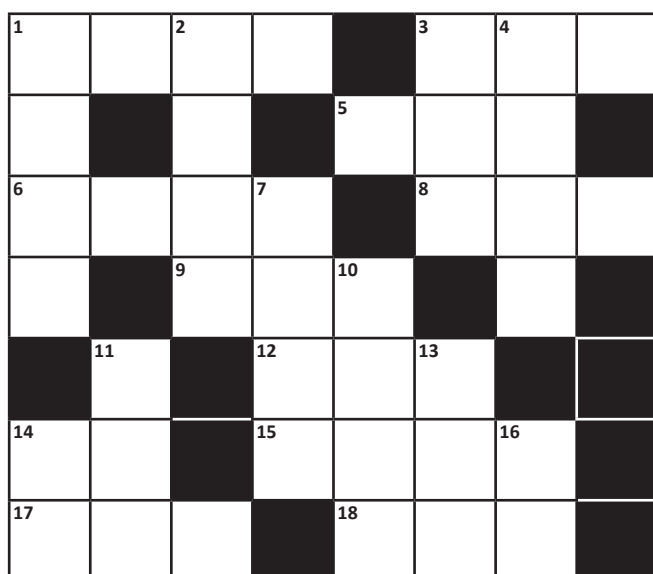
- a There is a 6 in the hundreds column, a 2 in the tens column and a 1 in the units column.
- b There is an 8 in the tens column, a 3 in the hundreds column and a zero in the units column.

Looking at whole numbers – reading and writing numbers to 999

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

Statement	True/False
a six hundred and twenty one = 621	
b five hundred and two = 520	
c eight hundred and fifty two dollars = \$852	
d two hundred and three dollars = \$230	
e nine hundred and ninety nine = 991	
f one hundred and five = 105	

5 Complete this crossword by writing the digits:



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

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



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

Looking at whole numbers – ordering numbers

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 1 000.

1 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:

a

	362	
--	-----	--

b

	378	
--	-----	--

c

351

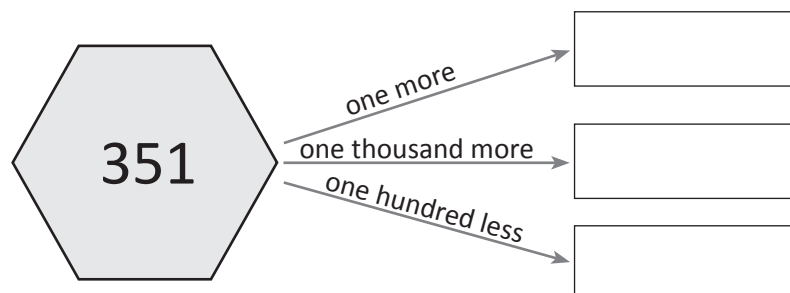
d

	332	

e

	311		

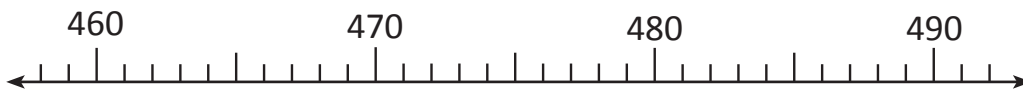
3 Create these numbers:



Looking at whole numbers – ordering numbers

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

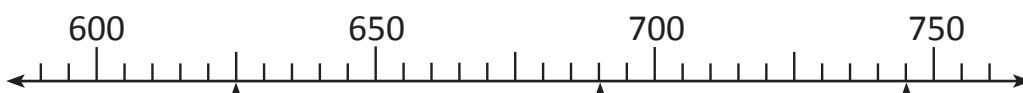
a Draw a line to connect the number in the box to where it sits on the number line:



465 472 479 484

Check the scale carefully on these number lines.

b Write the numbers in the blank boxes:





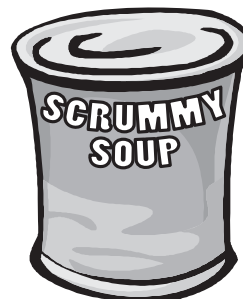
5 Label the weight of each tin using a number from the box:

a

220 g

420 g

110 g

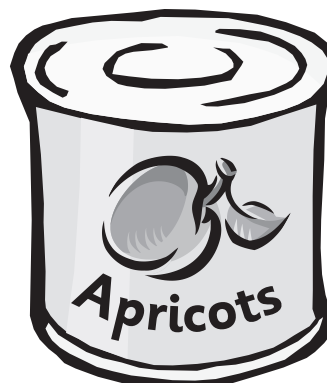


b

140 g

825 g

400 g



Looking at 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

An easy way to remember this is to think of Crandall the crocodile who is always hungry and will always eat the BIGGER number! We always read the number sentence from left to right.



5 is less than 54
5 is $<$ 54



124 is greater than 92
124 is $>$ 92

1 Use the correct $<$ or $>$ symbol to connect these numbers:

- a 26 41 b 94 89 c 104 106 d 962 991
e 397 372 f 722 728 g 442 440 h 87 266

2 Mitch wrote these number sentences. Are they correct? Tick or cross them.

- a $614 > 687$ b $61 < 90$ c $703 > 54$
d $532 < 888$ e $889 > 999$ f $206 < 260$

3 Use these numbers to write some number sentences following the directions. Use the symbols $<$ or $>$:

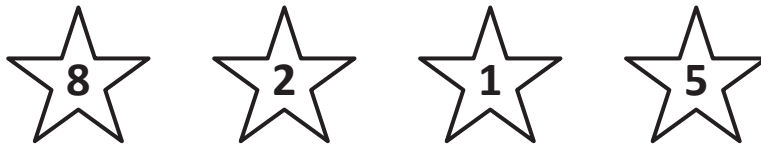
314 250 720 567 412

a Write three *greater than* number sentences:

b Write three *less than* number sentences:

Looking at 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 units 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 units digit.

5 Fill in the empty boxes with the correct numbers:

a $406 >$



b $973 <$

c < 973 but $>$ than 106

d $973 <$ by 20

e > 106 by 300

f $> 106 < 973$

Remember the hint about Crandall the crocodile!

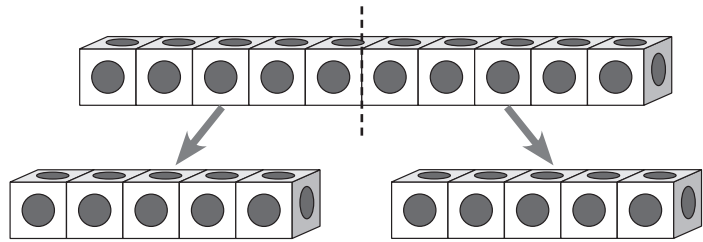


REMEMBER

Looking at whole numbers – odd and even numbers

Even numbers can be divided equally into 2 groups.

Odd numbers cannot.



- 1 Colour the even number squares orange and the odd number squares green:

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	26	27	28	29

- 2 Complete these statements:

- a Even numbers have a _____, _____, _____, _____ or _____ in the units place.
- b Odd numbers have a _____, _____, _____, _____ or _____ in the units place.

- 3 Place any even numbers in the boxes and add:

a

$$\begin{array}{|c|c|} \hline \square & \square \\ \hline + & \square \\ \hline \square & \square \\ \hline \hline \end{array}$$

b

$$\begin{array}{|c|c|} \hline \square & \square \\ \hline + & \square \\ \hline \square & \square \\ \hline \hline \end{array}$$

How should I share an odd number of lollies?



THINK

- 4 Place any odd numbers in the boxes and add:

a

$$\begin{array}{|c|c|} \hline \square & \square \\ \hline + & \square \\ \hline \square & \square \\ \hline \hline \end{array}$$

b

$$\begin{array}{|c|c|} \hline \square & \square \\ \hline + & \square \\ \hline \square & \square \\ \hline \hline \end{array}$$

- 5 Place even numbers in the top row of boxes and odd numbers in the bottom rows of boxes and add:

a

$$\begin{array}{|c|c|} \hline \square & \square \\ \hline + & \square \\ \hline \square & \square \\ \hline \hline \end{array}$$

b

$$\begin{array}{|c|c|} \hline \square & \square \\ \hline + & \square \\ \hline \square & \square \\ \hline \hline \end{array}$$

c

$$\begin{array}{|c|c|} \hline \square & \square \\ \hline + & \square \\ \hline \square & \square \\ \hline \hline \end{array}$$

Looking at whole numbers – odd and even numbers

6 Circle one answer in each sum:

a Even + even = odd / even

b Even + odd = odd / even

c Odd + odd = odd / even

d What did you discover about adding odd and even numbers?

7 Colour a path from start to finish. You must move through one hexagon to a touching hexagon and they must add to an even number.

Start — 3 — 1 — 2 — 9 — 4 — 4 — 3 — 0 — 1 — Finish

8 This game was played by children in ancient times.

You don't need any equipment, just your hands!

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.



Getting ready

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



copy



What to do

Students 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

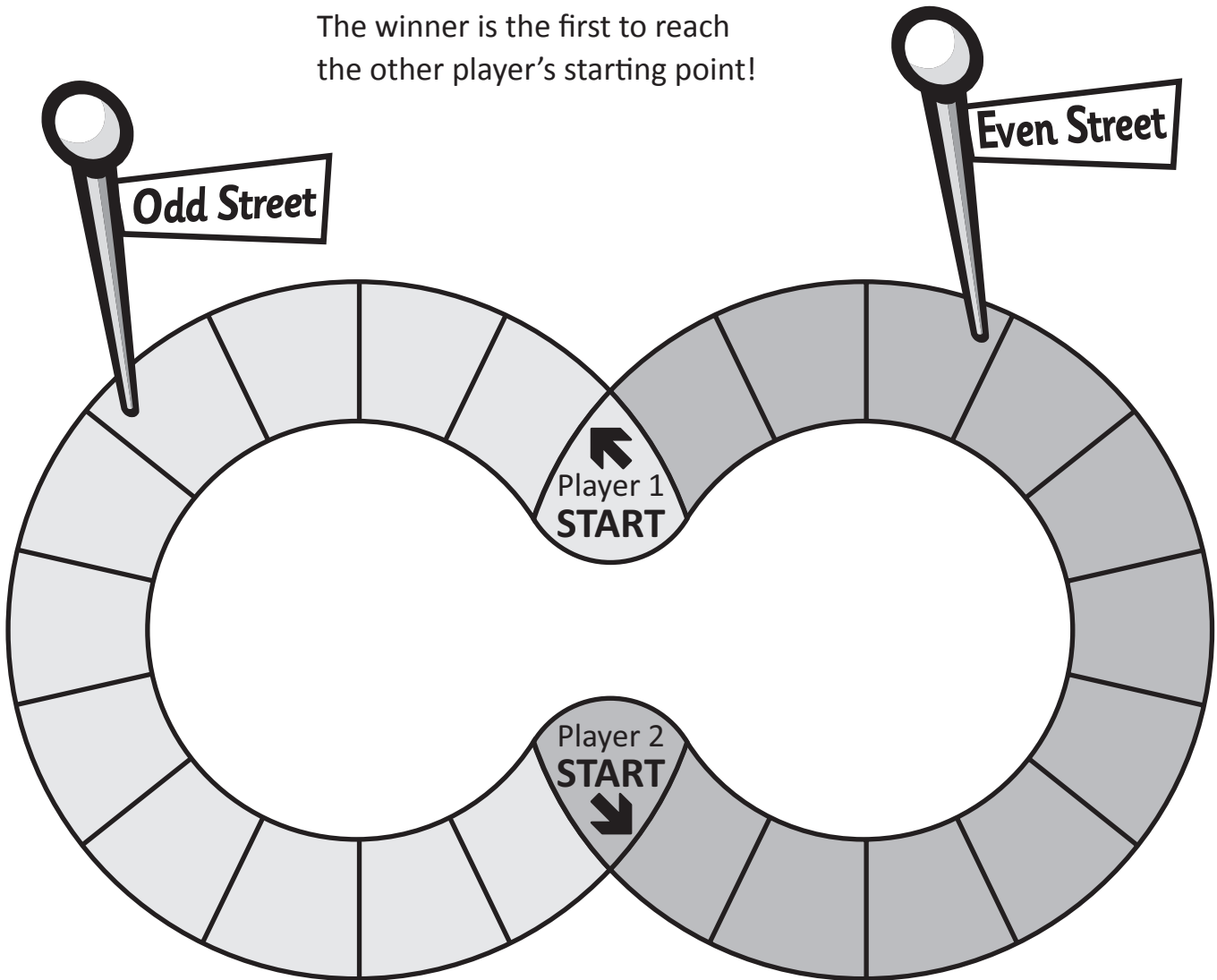


This is a game for 2 players. You need the game board below, 2 markers and a die.



Each player places their marker at Start. Player 1 follows Odd Street and Player 2 follows Even Street. Take turns rolling the die. If the number is odd, the player on Odd Street moves one space. If the number is even, the player on Even Street moves one space.

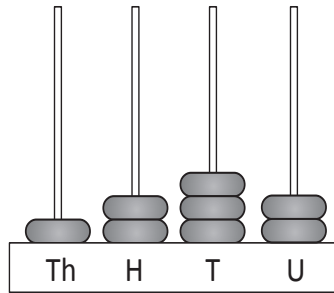
The winner is the first to reach the other player's starting point!



Play again with 2 dice and add the numbers.

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 1 000 or one thousand.
 2 is worth 200 or two hundreds.
 3 is worth 30 or three tens.
 2 is worth 2 or two units.

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

Thousands	Hundreds	Tens	Units
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

- 4 524
- 5 432
- 4 388
- 5 343

2 Write the number shown on each abacus:

a

b

c

d

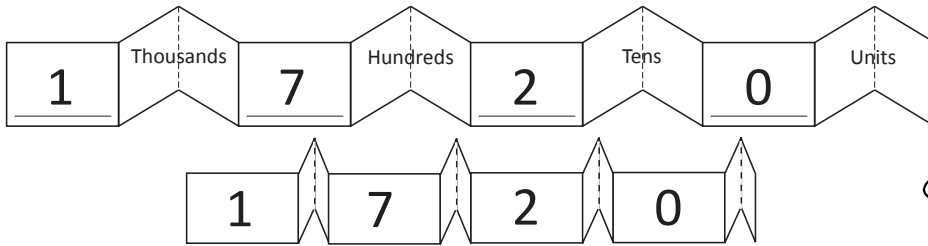
e

f

Place value of whole numbers – expanded notation

Expanded notation is when we write out each digit in full. Numeral expanders are a handy way of showing the value of each digit.

Remember that the cube represents 1 000.



REMEMBER

1 Which number is each set of base 10 blocks representing? Write this number in the box and show it as expanded notation:

a

b

c


2 Draw a line to match the numbers in expanded notation to the numerals.

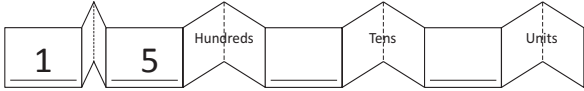
- | | | |
|----------|---------------------------------------|-------|
| a | 4 thousands 6 hundreds 1 ten 2 units | 4 254 |
| b | 4 thousands 6 hundreds 8 tens 0 units | 4 361 |
| c | 4 thousands 4 hundreds 1 ten 1 unit | 4 680 |
| d | 4 thousands 3 hundreds 6 tens 1 unit | 4 612 |
| e | 4 thousands 2 hundreds 5 tens 4 units | 4 411 |

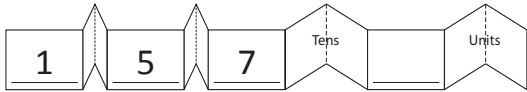
Place value of whole numbers – expanded notation

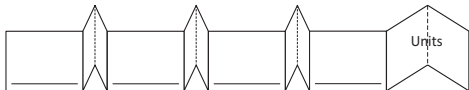
- 3 Here is a numeral expander folded up at different places. Fill in the blank spaces to show all the different ways of naming this number:

1 576 One thousand five hundreds and seventy six

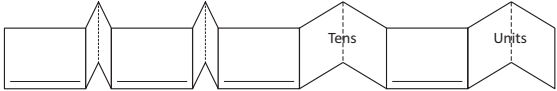
 = 1 thousand + 5 hundreds + 7 tens + 6 units

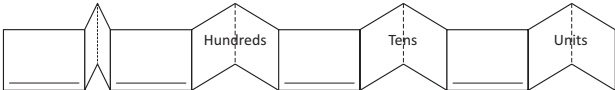
 = _____ hundreds + 7 tens + 6 units

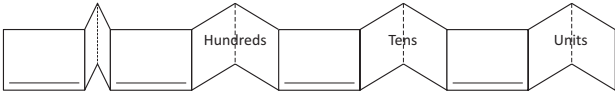
 = _____ tens + 6 units

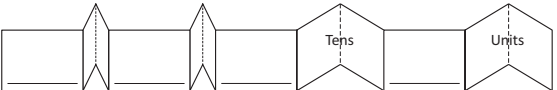
 = _____ units

- 4 Put each of these numbers in a numeral expander.

a  1 567

b  2 567

c  5 789

d  7 624

- e Which number has 25 hundreds, 6 tens and 7 units? _____

- 5 Complete each row of the table like the first row:

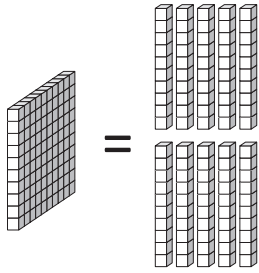
Numeral	Expanded notation in numbers	Expanded notation in words
592	$500 + 90 + 2$	59 tens and 2 units
	$600 + 70 + 8$	
		7 hundreds and 14 units
6 703		67 hundreds and ___ units
		46 hundreds and 6 units
2 018		2 thousands and 18 units

83 could also be described as 83 units and 540 could be called 54 tens.

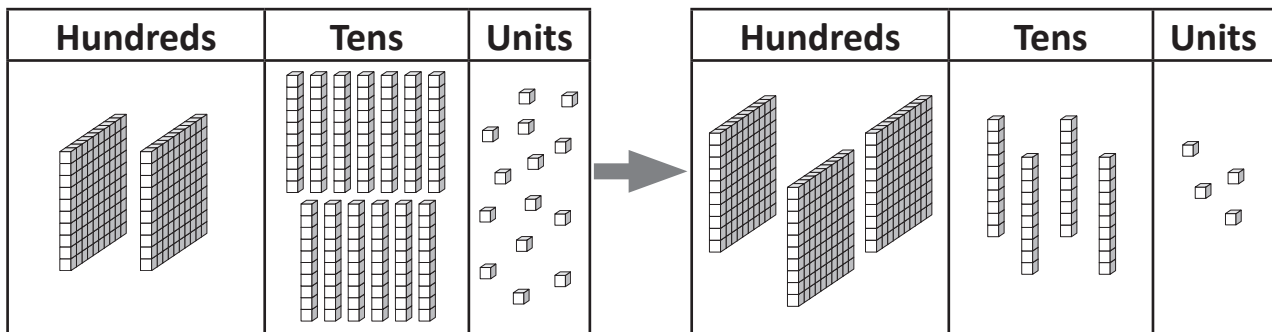
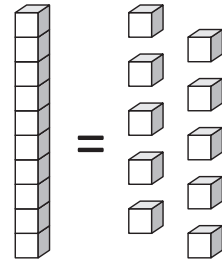


THINK

Place value of whole numbers – trading

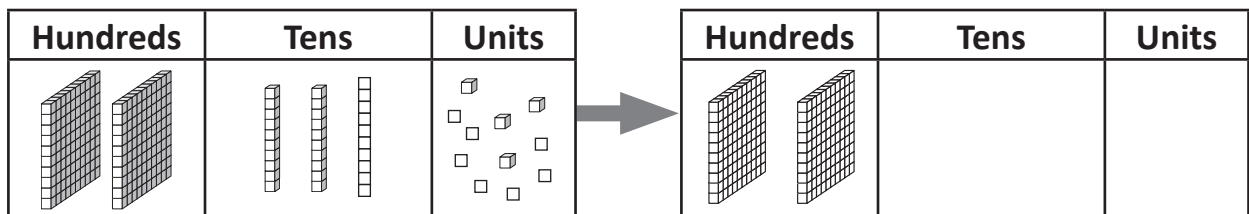


These place value boards show us how trading works. If we have 10 units, we should trade them for a ten. If we have 10 tens, we should trade them for a hundred. This is how our number system works.

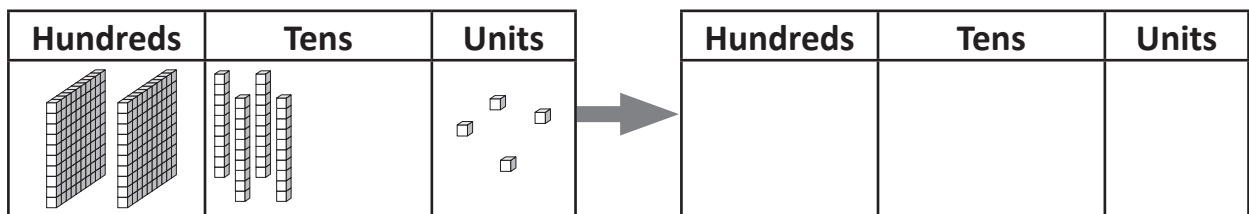


1 Practise trading by adding the amount to each place value board. Draw the amount to be added on the first board and show it regrouped on the next board. Write the answer in the top box. The first one has the amount to be added drawn on to show you.

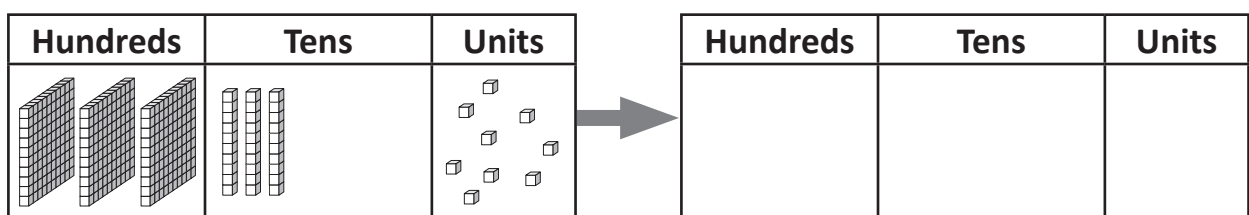
a 17 more



b 80 more

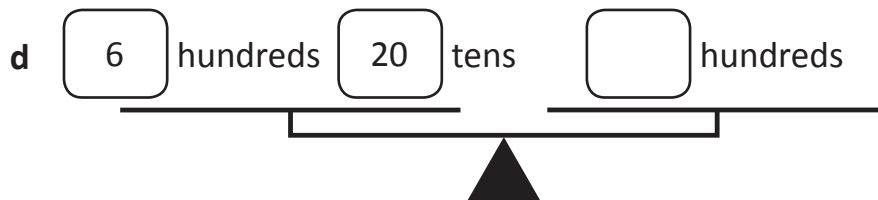
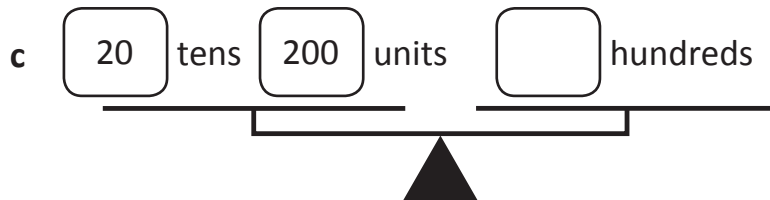
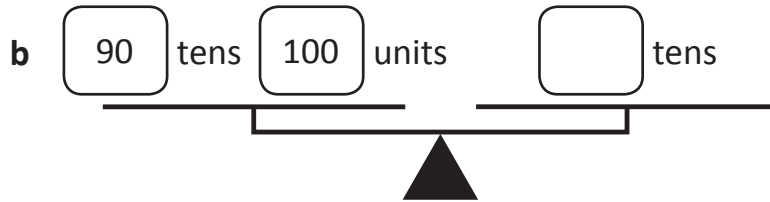
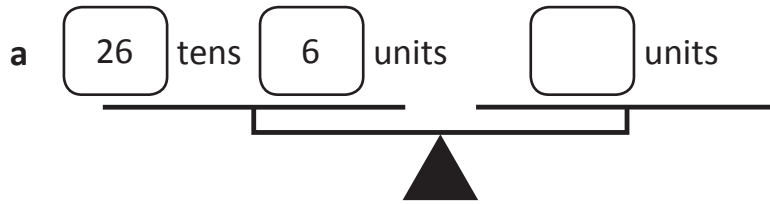


c 27 more



Place value of whole numbers – trading

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



These are the same amounts but are given different names. Remember 22 tens is 220.



REMEMBER

3 Which number am I?

a I have 4 hundreds and 36 tens and 23 units.

b I have 14 hundreds and 20 tens.

c I have 50 tens and 200 units.

Place value of whole numbers – calculator work

1 Use your calculator to change these numbers. Write what you did under each one:

a Change 567 to 507 by taking away one number.

b Change 2 093 to 2 100 by adding one number.

c Change 760 to 60 by taking away one number.

d Turn 997 into a 4 digit number.

Use what you know about place value to change numbers just by adding and subtracting.



DISCOVER

2 Use a calculator to follow these steps and write the number you end up with.

a Enter the number 1 hundred less than 3 415. Subtract 15 and add 700.

b Enter the 84 tens. Add 16 tens.

c Enter the number 1 before 4 400. Subtract 99. Add 700.

d Enter the number 3 hundred more than 2 579. Make it 1 000 more. Add 1 unit then 20 units. Now add an amount to make this number 4 000. What did you add?



Getting ready

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



copy



What to do

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 trade them for 1 long. When you have 10 longs you can trade them for a flat. The winner is the first person to get a flat on their game board.

	Hundreds (flats)
	Tens (longs)
	Units (shorts)



Getting ready

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



copy



What to do

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.

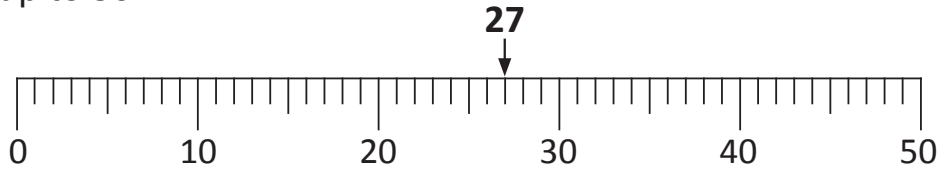
1	2	3	4	5
6	7	8	9	1
2	3	4	5	6
7	8	9	1	2

Round and estimate – rounding to 10 and 100

Rounding makes big numbers easier to work with. Look at these examples of rounding to the nearest 10.

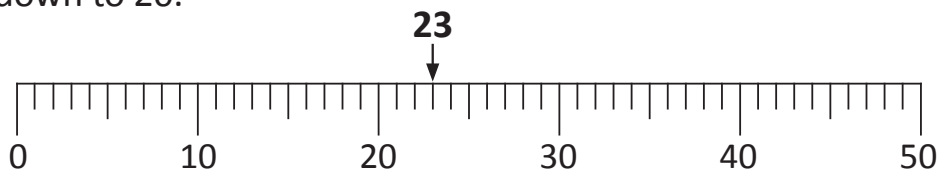
We round up if the number is over the halfway mark:

27 rounds up to 30.

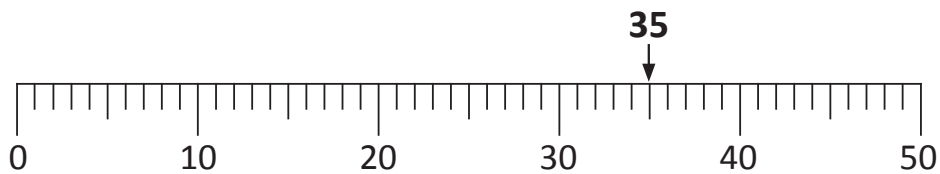


We round down if the number is under the halfway mark:

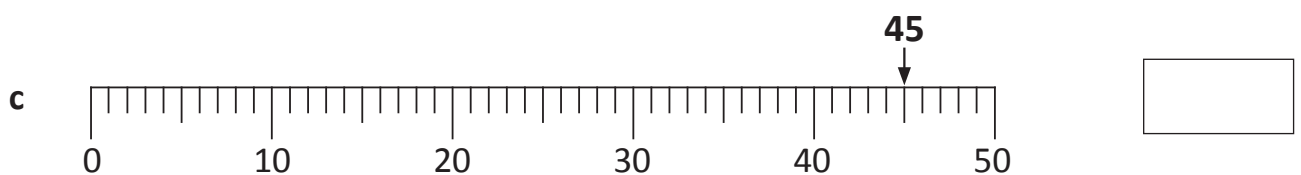
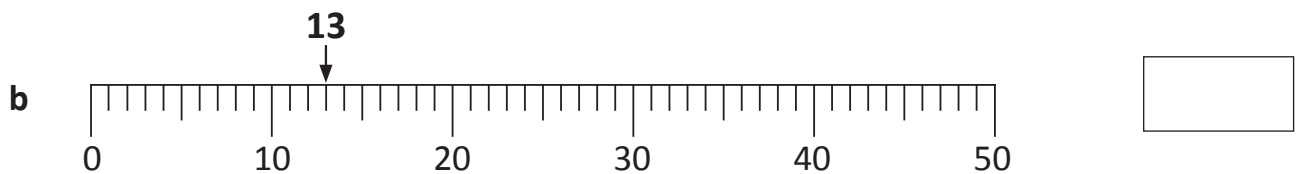
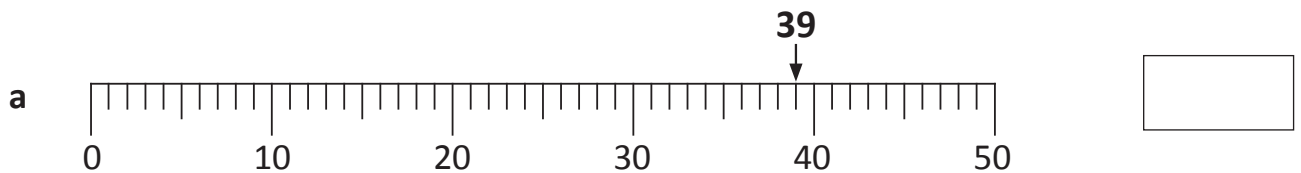
23 rounds down to 20.



We round up if the number is exactly halfway:

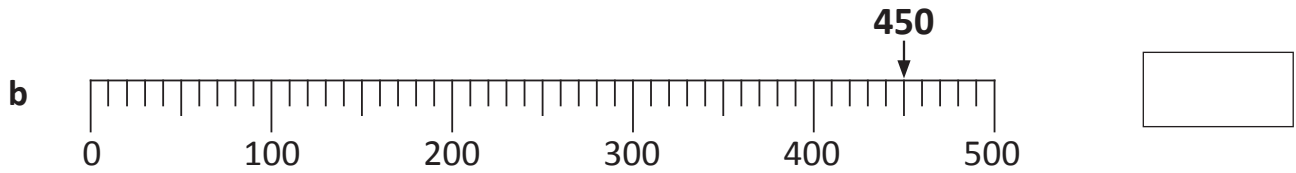
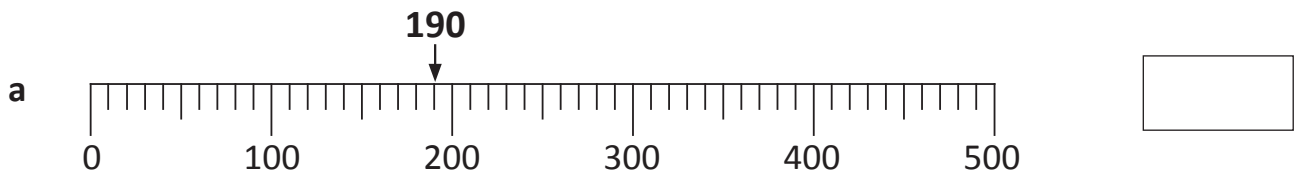


1 Round these numbers to the nearest 10:

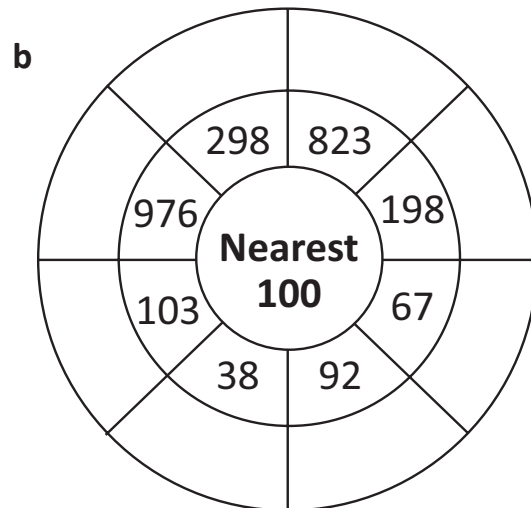
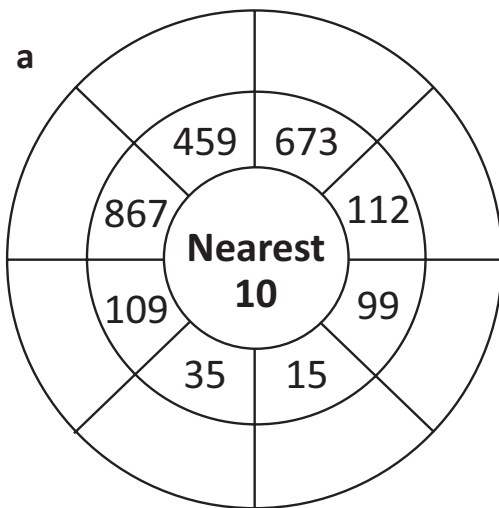


Round and estimate – rounding to 10 and 100

2 Round these numbers to the nearest 100:

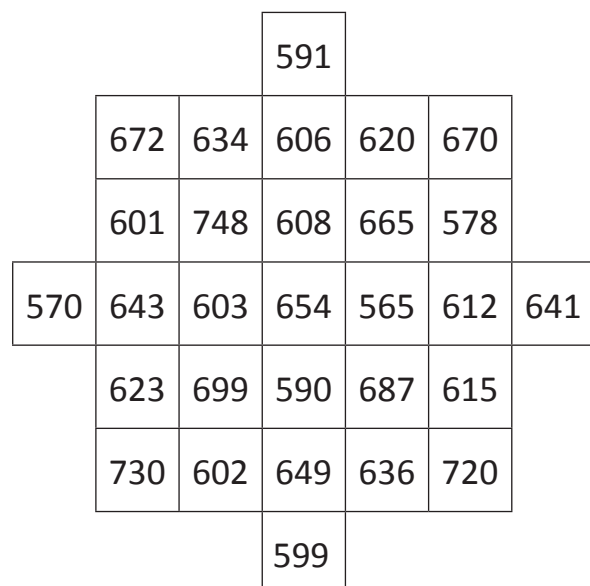


3 Complete these rounding wheels:



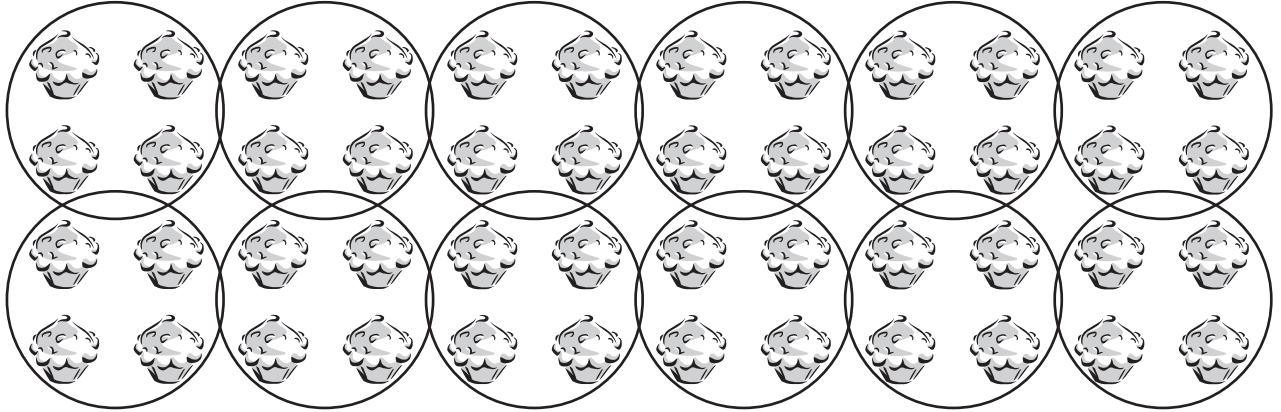
4 Choose 2 colours. Use colour 1 to colour the numbers that round to 600.

Use colour 2 to colour the numbers that round to 700.

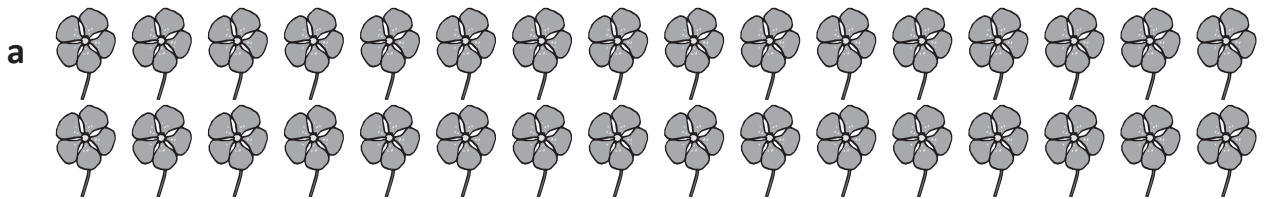


Round and estimate – estimating

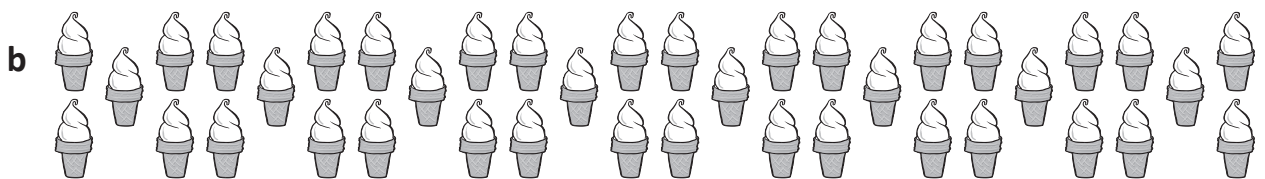
When we estimate, we are making a sensible guess. Estimation is very handy when you want to check your work. Look at these cakes. We can estimate the total number of cakes by circling a sample group of cakes and counting the groups.



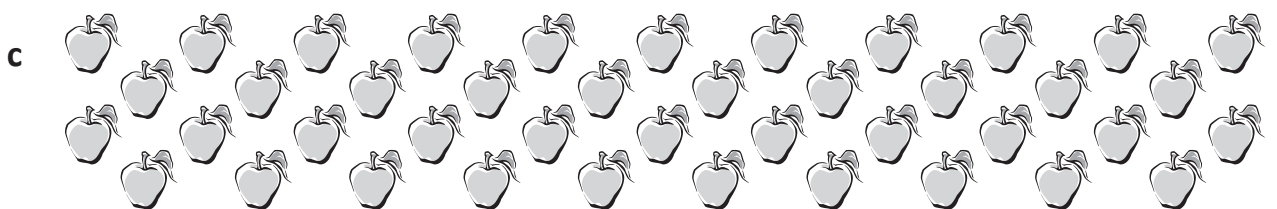
1 Estimate the number of objects in each set below. Circle a sample group and count the groups.



Total



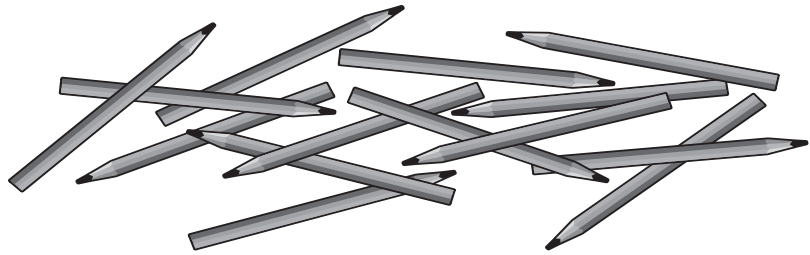
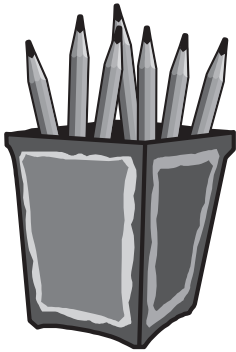
Total



Total

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.



Estimated number of pots needed

- 3 Estimate how many holes you 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?

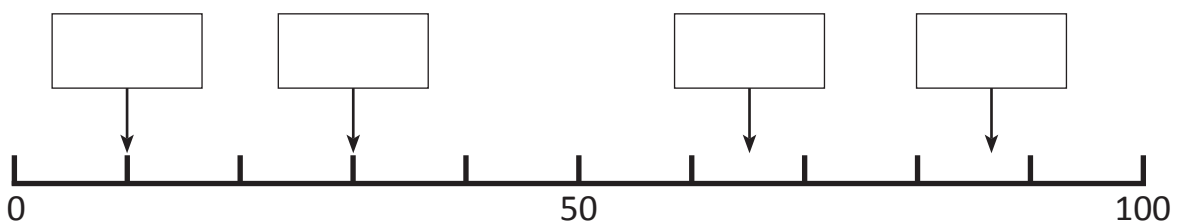
c How close were you?

Remember a good estimate does not have to be the exact amount. It just needs to be reasonable.



REMEMBER

- 4 Estimate the numbers that could be located at the marked points:



Round and estimate – rounding to estimate

Rounding is a very useful skill when we want an estimate. An answer that is an estimate, is not exact, but is reasonable which means it is very close to the exact answer.

Round down to 10

$$\boxed{12} + \boxed{39} \text{ is about } \boxed{50}$$

Round up to 40

1 Draw a line to connect each sum to the most reasonable answer by rounding:

90

60

40

20

$7 + 12$

$22 + 19$

$34 + 29$

$27 + 59$

2 Look at what each person ordered from the menu and how much they paid. Decide and circle whether their estimate is reasonable or not. An estimate is reasonable if both amounts are rounded correctly.

	Estimate of bill	Reasonable?
a Dylan bought stir-fry noodles and an orange juice.	\$6	Yes / No
b Michelle bought a muffin and sushi rolls.	\$6	Yes / No
c Julia bought a bottle of water and souvlaki.	\$9	Yes / No
d Stef bought a salad sandwich and a piece of fruit.	\$4	Yes / No
e Marco bought hot chips and a slurpee.	\$4	Yes / No

Laura's Lunches	
Salad sandwich	\$4.25
Sushi rolls	\$2.20
Hot chips	\$1.95
Souvlaki	\$7.35
Fruit	\$.60
Stir-fry noodles	\$4.95
Slurpee	\$1.55
Orange juice	\$1.95
Bottle of water	\$2.15
Choc or banana muffin	\$1.85

3 Colour the best answer in each addition:

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

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
$292 + 102 = 394$	
$399 + 212 = 711$	
$98 + 803 = 901$	
$310 + 201 = 511$	
$99 + 291 = 390$	
$404 + 403 = 907$	

Remember an approximate answer is reasonable.



- 5 Use rounding to estimate the answers to these problems:

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?



Getting ready

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



What to do

- 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



Getting ready

This is a game for 2 players. You and your partner will need a copy of this page and 3 dice. Also you will each need a calculator to keep score and a marker.

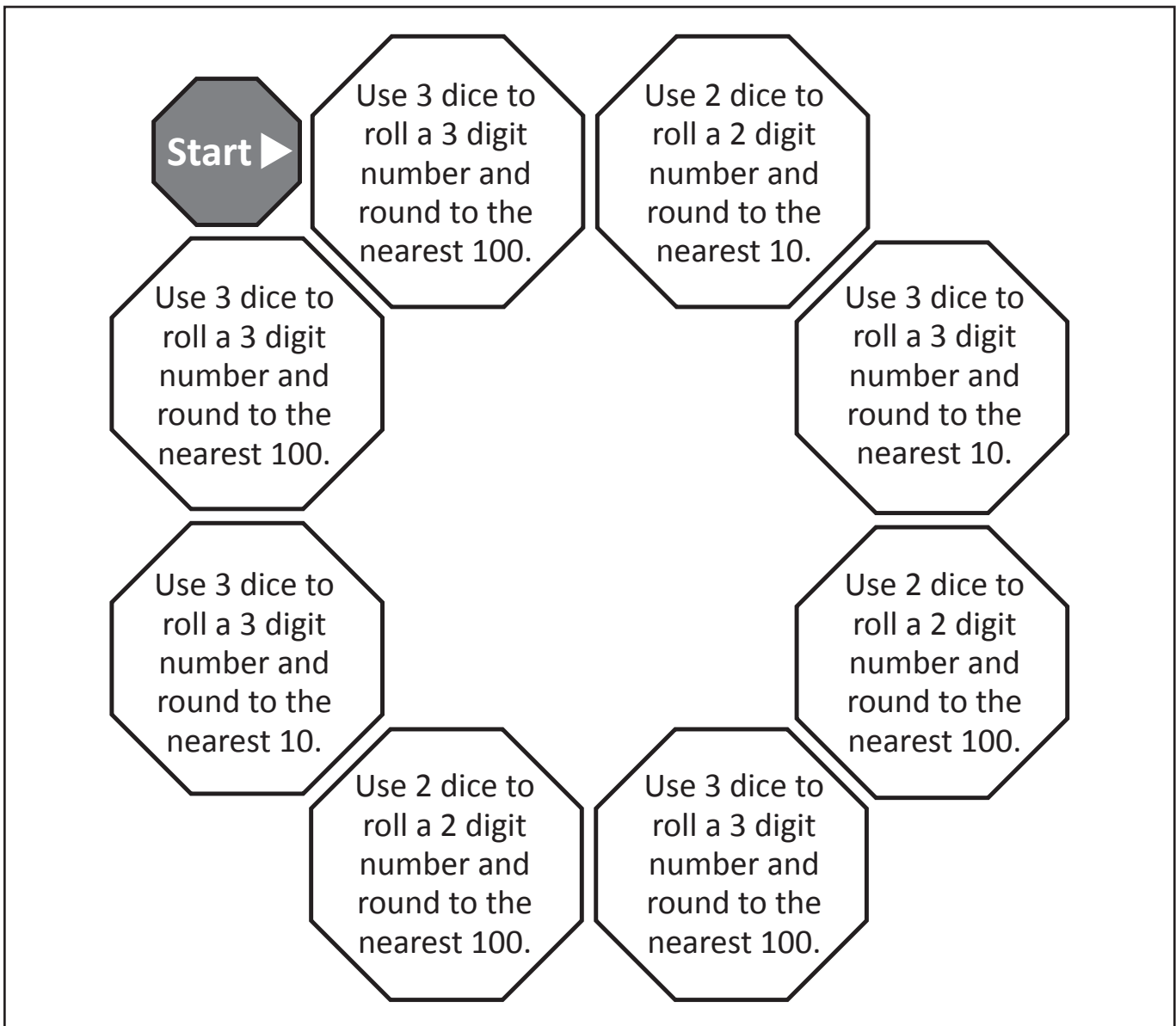


copy



What to do

Decide who will go first. Roll a die and move that number to the next octagon. Follow the directions and record your number. Take turns and keep track of your score on your calculator by adding the number you make on each turn. The winner is the first one to reach 1 000.



What to do next

Play again. This time, make it the best out of three.