

JAMAICA

SAMPLE

NSC Edition

Primary Mathematics

Second Edition

Grade

2



Lisa Greenstein

Contributor: Aaliyah Hunter

hachette
LEARNING

Contents

Introduction..... 6

September

Chapter 1: Sets and numbers..... 8

Comparing sets	9
Using signs to compare.....	11
Equivalent sets.....	12
Number names to 100	13
Partitioning sets.....	14
More partitioning	15
Renaming tens and ones.....	16
Partitioning tens and ones.....	17
3-digit numbers.....	18
Hundreds.....	19
Hundreds, tens and ones.....	20
Thinking about bigger numbers	21
What zero means	22
Place value practice.....	23
Numbers and number names.....	25
Comparing numbers	26

Chapter 2: Money 30

Coins and notes.....	31
Different ways to make a value.....	32
Calculate the value	33

Chapter 3: Measuring and comparing 36

Comparing sizes.....	37
Near and far	38
Length.....	39
Non-standard units.....	40
Standard units	41

Chapter 4: Shapes and paths 45

Open and closed paths	46
Joining paths.....	47
Shapes	49

October

Chapter 5: Numbers to 1000 53

Hundreds, tens and ones.....	54
Expanded form.....	55
More hundreds, tens and ones.....	56
Greatest and least.....	58
Using a number line	59
Counting by tens.....	60
Skip counting.....	61
More skip counting.....	62
Numbers in order.....	63
Ordinals	64
More ordinals	65

Chapter 6: Measuring length 67

Instruments for measuring length	68
Centimetres	69
Estimating length.....	70
More measuring in centimetres.....	71
Sunflowers.....	72
A decimetre strip.....	74
A metre stick.....	76
Selecting the best unit	77

November

Chapter 7: Addition and subtraction..... 79

Adding tens.....	80
Tens and ones	82
Subtraction	83
Equal or not equal?	84
Addition and subtraction facts to 18.....	86
Addition table	87
Adding 2-digit numbers	89
Regrouping.....	90
Subtracting 1-digit numbers	92
More subtraction	93
Exchanging	94
Subtracting in columns	95

Adding 3-digit numbers	96
Solving problems	98

Chapter 8: Patterns 100

Patterns in nature	101
Patterns in design	102
Making sound patterns	103
Addition and subtraction patterns	104
Complete the pattern	105
More rules and patterns	106

Chapter 9: Data 109

Pictographs	110
Collecting data	111
Bar graphs	113

December

Chapter 10: Solids 116

Solids around us	117
Solid shapes	118
Talking about solids	119
Drawing cuboids	120
Drawing cones and cylinders	121
Making solids	122
Nets	123

Chapter 11: Solving problems 126

Writing number sentences	127
What number is missing?	129
Bar models	130
More puzzles	132

January

Chapter 12: More addition and subtraction 134

Parts of a sum	135
Doubles	137
Near doubles	139
Zero	140
Adding multiples of ten	141
Adding 2- and 3-digit numbers	142
Subtracting 2- and 3-digit numbers	144
Problem solving	146

Chapter 13: Time 148

Time of day	149
Days, weeks, months and years	150
Using a calendar	152
Events in a year	154
Units of time	156
Time on clocks	158
Half past, quarter past and quarter to	160
Digital times	161
Five minutes or fifteen minutes?	162
Longer intervals	163

February

Chapter 14: Whole numbers and fractions 165

Counting numbers and whole numbers	166
Even and odd numbers	167
More about even and odd numbers	168
Fractions	169
Equal and unequal parts	170
Fraction of a shape	172
Half of a set	173
A fraction of a set	175
More fractions of sets	176
Equivalent fractions	178
Fractions that show a whole	179

Chapter 15: Capacity 182

The litre	183
How much does it hold?	184
Estimate, measure and record capacity	185

March

Chapter 16: Multiplication 189

Repeated addition	190
More repeated addition	192
The $\times$ sign	193
Arrays	194
Draw your own arrays	195
Roll the dice	196
Word problems	198

Chapter 17: Mass..... 200

Heavier and lighter	201
Comparing objects	202
More comparing	203
The kilogram	204
Kilogram and grams	205
Reading scales	206
More reading scales.....	207
Solving mass problems.....	208

Chapter 18: Plane shapes.....210

Plane shapes	211
Rectangles, squares and triangles	212
Circles	213
Sorting shapes.....	217

April**Chapter 19: Division.....221**

Repeated subtraction	222
Division	223
Divide into groups	225
Division on a number line.....	226
Using arrays again.....	227
Remainders	228
Using $<$ and $>$ symbols	229
Completing number sentences	231
Party problems	234

Chapter 20: Prisms..... 236

Triangular prisms	237
Draw a prism	238
Nets of prisms	239
Some other prisms	241

Chapter 21: Making patterns..... 243

Pattern rules	244
Attributes.....	246
More patterns	248

Chapter 22: Data..... 250

Drawing pictographs with a 1:1 key	251
Constructing pictographs with a 1:2 key....	252
Interpreting bar graphs.....	253
Asking fair questions.....	254
Collect and present your data.....	256
Interpreting information	257

May**Chapter 23: Working with fractions..... 259**

Understanding fractions.....	260
Fraction families	262
Adding fractions	264
Pizza fractions.....	265
Subtracting fractions	266
More adding and subtracting fractions.....	268

Chapter 24: Measurement.....271

Measuring temperature.....	272
Measuring and recording temperature.....	274
Plotting temperatures.....	275

Chapter 25: Symmetry.....277

Symmetrical shapes	278
Mirror images.....	279
Symmetrical or not?	280
Checking lines of symmetry	281

Chapter 26: Simple algebra..... 283

The addends and the sum	284
Work out the missing digits.....	286
Using letters.....	288
Unknowns.....	289
Simple algebra.....	290
Solving word problems	292

June**Chapter 27: More fractions..... 295**

Whole numbers as fractions	296
Mixed numbers.....	297
More mixed numbers	299
Improper fractions.....	300
More improper fractions and mixed numbers.....	302

Chapter 28: Nets..... 305

Pyramids	306
Making pyramids from nets	307

Chapter 29: Probability.....311

Certain, impossible, maybe	312
Likely and unlikely	313
More about probability	315

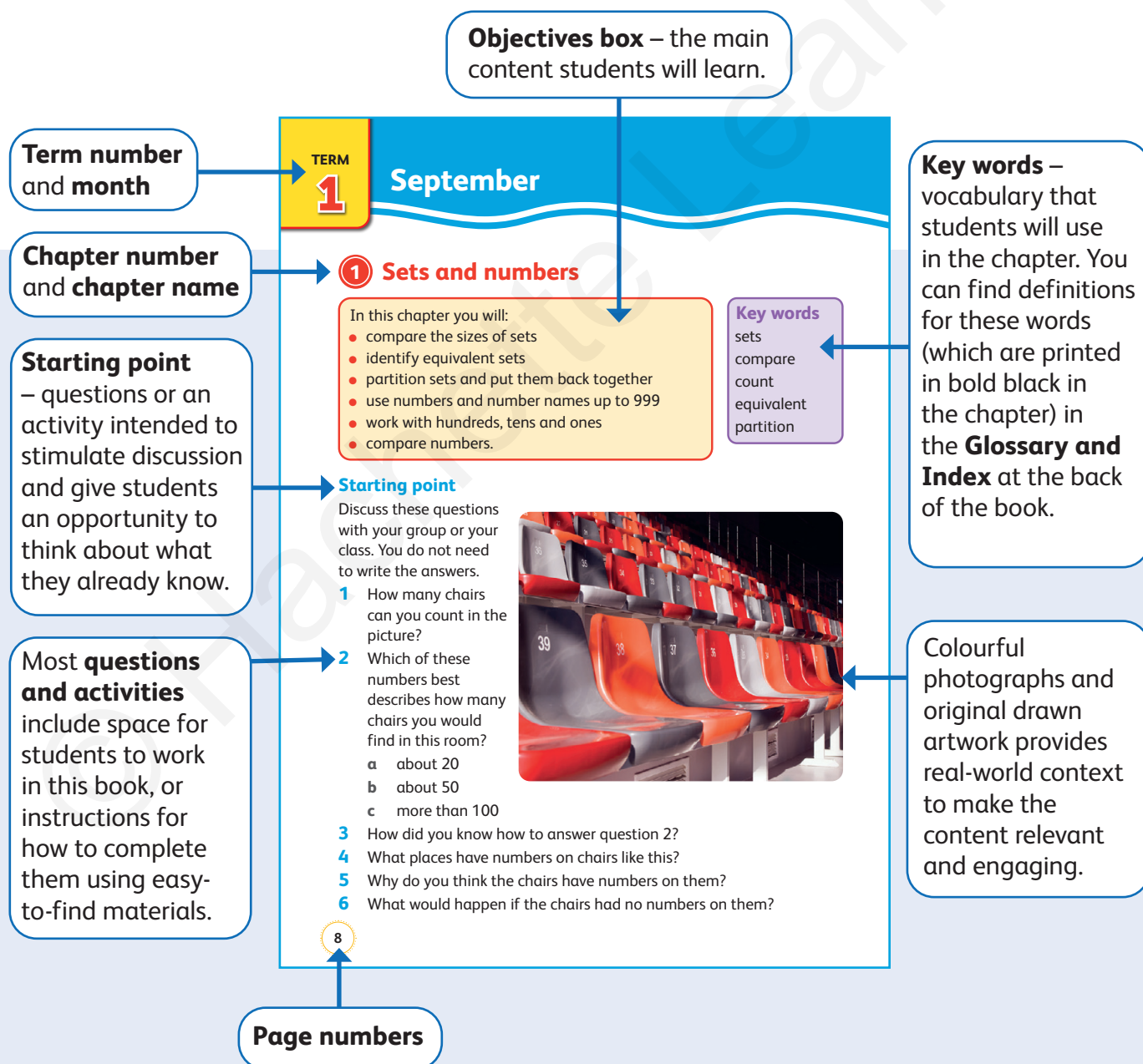
Glossary and Index318

Introduction

Welcome to *Jamaica Primary Mathematics for Grade 2*. This book has been designed collaboratively by a team of international and Jamaican writers and educators to meet fully the requirements of the Jamaican NSC.

Mathematics is divided into five strands: **Number**, **Measurement**, **Geometry**, **Statistics and probability** and **Algebra**. In each chapter, you will find a colour-coded tab down the right-hand side of the page, showing which strand the student is working on. Students steadily build up their skills in each strand throughout each term. The **Contents** page shows you how the chapters have been allocated to each month of the school year.

This is what you will find as you work through the book:



Dear Student

This book is your special guide to the world of numbers, shapes, patterns and problem solving. Mathematics is all around you. You use it when you count, measure, share things, and even when you play games. You can see mathematical patterns in nature in your environment, and in the built world around you. As you work through each page, you will discover colourful pictures, fun activities, challenges and new ways to solve problems.

As you work through this book, do not be afraid to try different ways of working, and to make mistakes. Mistakes help us to learn and understand new things. Ask questions and discuss your ideas with a partner or a group. Mathematics is challenging, and you will learn in many different ways. Good luck and have fun!

Other features you will find in a chapter may include:

-  **Real-life maths** – activities that link content to real-world contexts, or provide opportunities for hands-on and practical activities. These are often integrated with subjects such as Art, Science or Social Studies.
- A  indicates an opportunity for drawing.
- The  indicates an activity that gives students an opportunity to use technology or develop their digital literacy.
-  **Problem solving** to solve real-world problems, in context, using the maths that have learned.
- **Practice** – extra questions for students who need an opportunity for further practice in order to achieve mastery.
- **Challenge** – extension questions that give students an opportunity to extend or challenge themselves using what they have learned.
- **What I have learned** – a reflection activity at the end of each chapter, which can be used for consolidation or assessment.

1 Sets and numbers

In this chapter you will:

- compare the sizes of sets
- identify equivalent sets
- partition sets and put them back together
- use numbers and number names up to 999
- work with hundreds, tens and ones
- compare numbers.

Key words

set
compare
count
equivalent
partition
whole
parts
zero (0)

Starting point

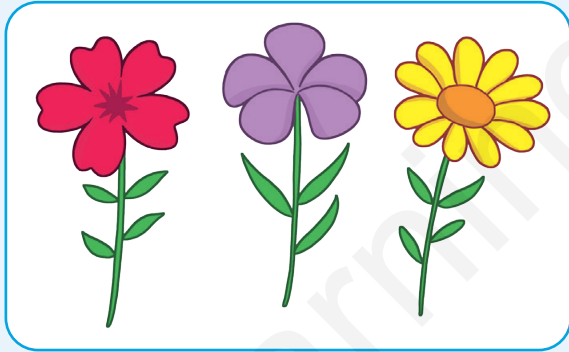
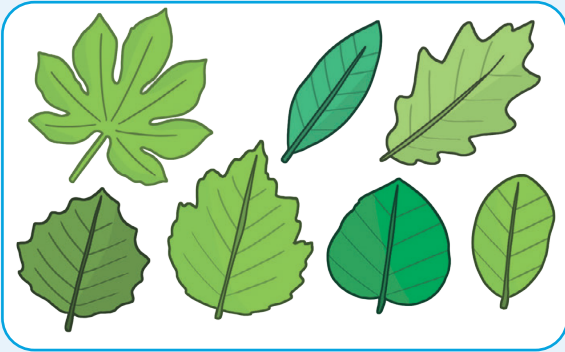
Discuss these questions with your group or your class. You do not need to write the answers.

- 1 How many chairs can you count in the picture?
- 2 Which of these numbers best describes how many chairs you would find in this room?
 - a about 20
 - b about 50
 - c more than 100
- 3 How did you know how to answer question 2?
- 4 What places have numbers on chairs like this?
- 5 Why do you think the chairs have numbers on them?
- 6 What would happen if the chairs had no numbers on them?



Comparing sets

A **set** is a group. When you **compare** sets, you **count** how many objects the set has. The set that has more is larger. The set that has fewer is smaller.



The set of leaves is larger than the set of flowers.
There are more leaves than flowers.

1 Count how many in each set. Tick (✓) the larger set in each pair.

a

☐

☐

b

☐

☐

c

☐

☐

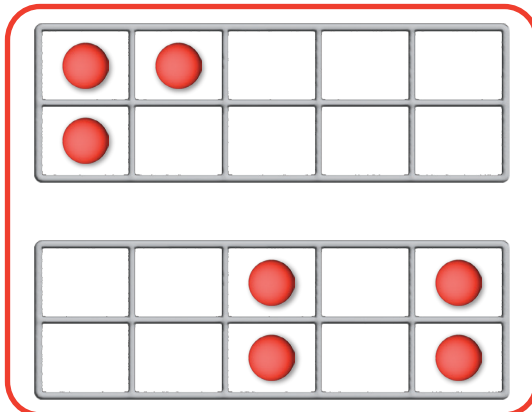
d

☐

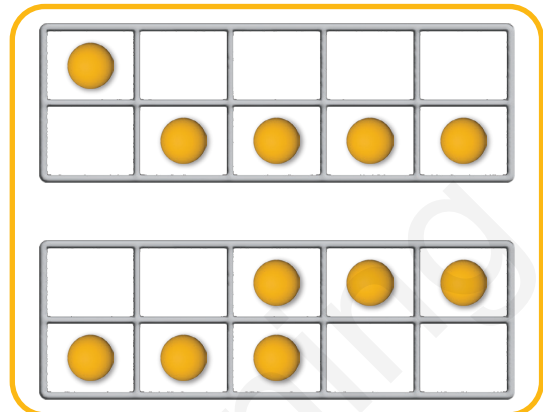
☐

2 Count how many in each 10-frame. Tick (✓) the smaller set in each pair.

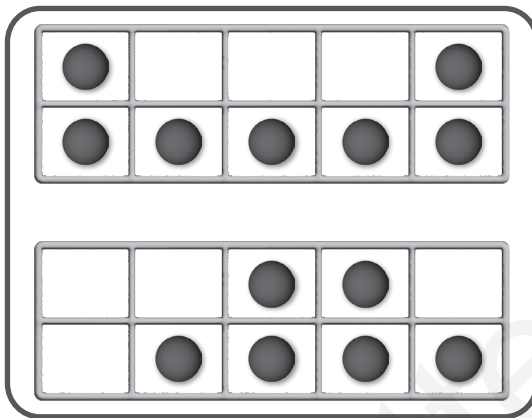
a



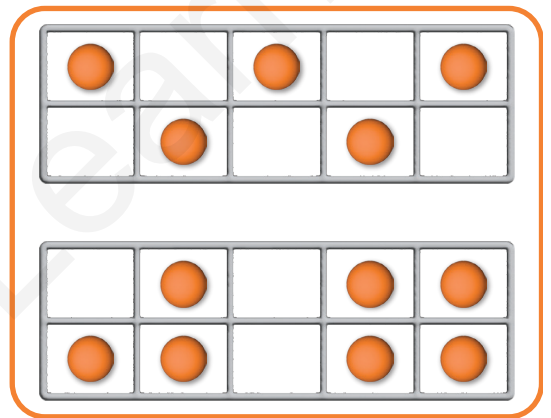
b



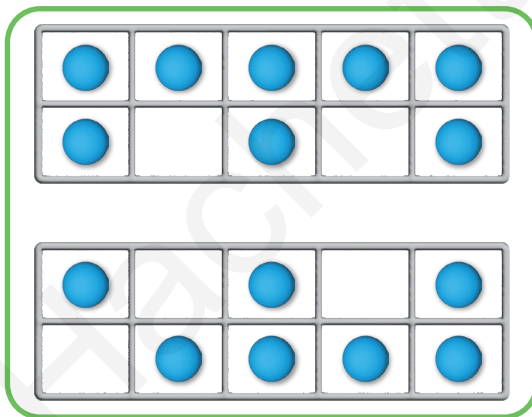
c



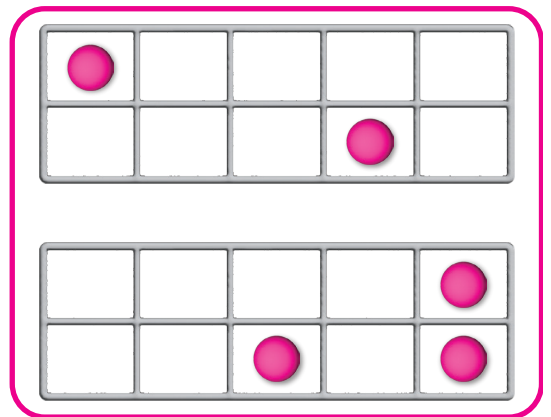
d



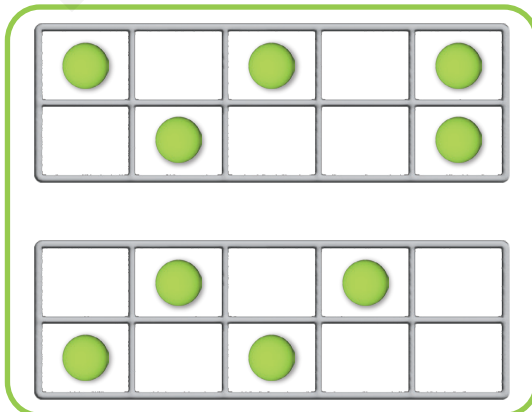
e



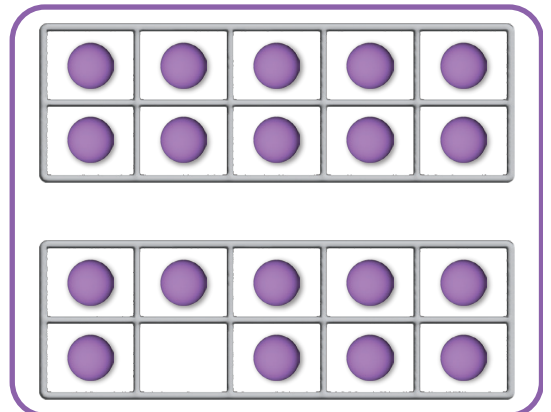
f



g



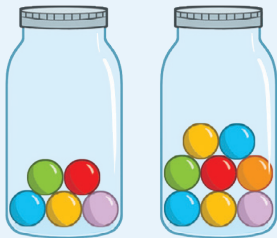
h



Using signs to compare

We use signs to compare sets and numbers.

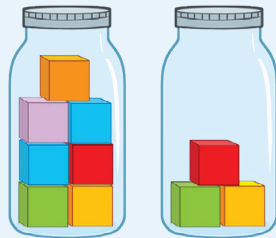
> greater than



5 is less than 8.

$$5 < 8$$

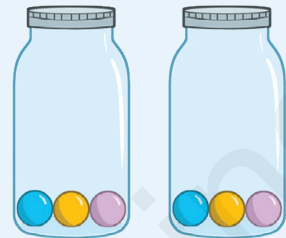
< less than



7 is greater than 3.

$$7 > 3$$

= equal to

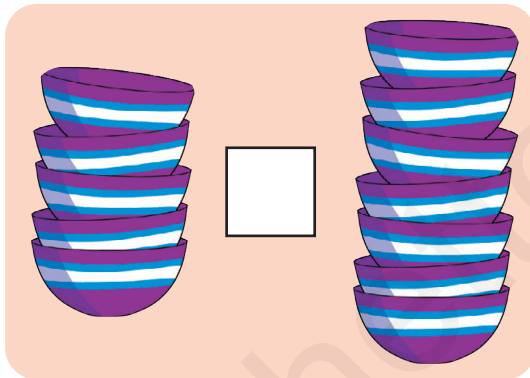


3 is equal to 3.

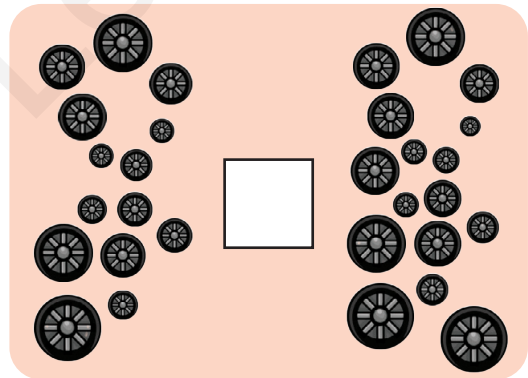
$$3 = 3$$

1 Count how many in each set. Write $<$, $>$ or $=$ to compare.

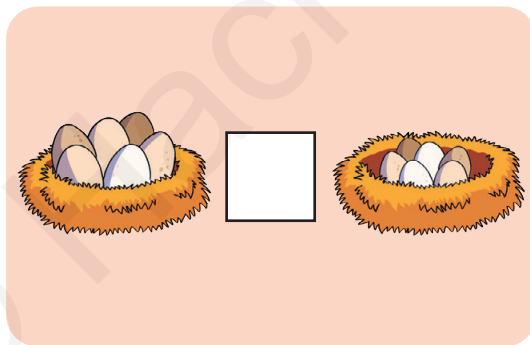
a



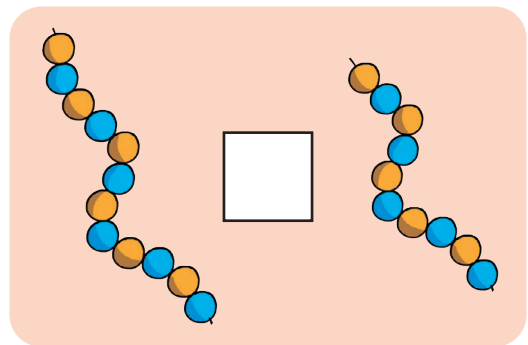
b



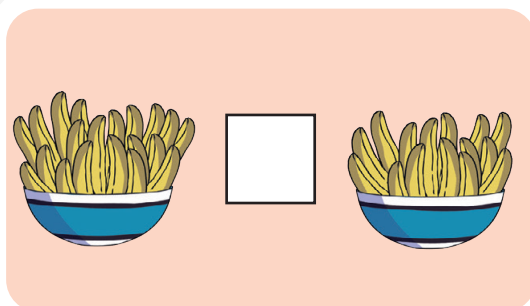
c



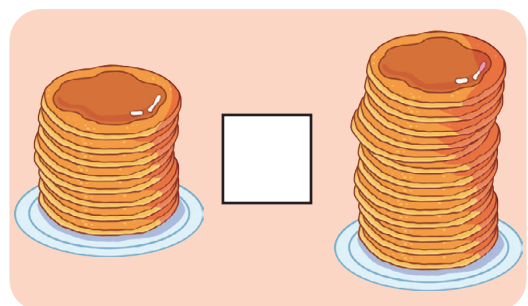
d



e



f



Equivalent sets

Equivalent sets have the same number of objects.

There are six balls in the jar.
There are six mangoes in the bowl.

The sets are **equivalent**.

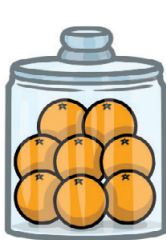


=



1 Draw shapes in the empty jars to make equivalent sets.

a

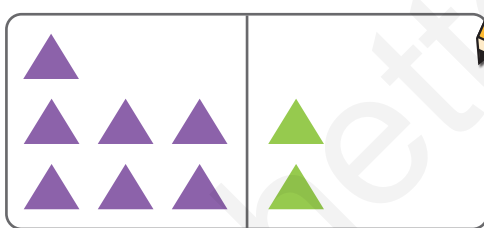


b

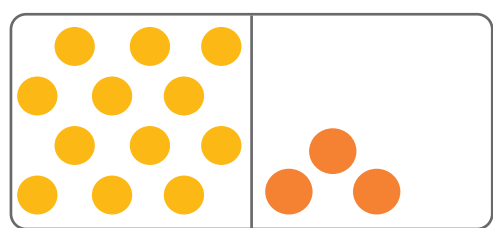


2 Add more shapes so that the sets are equivalent.

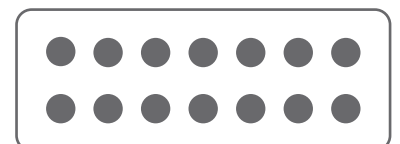
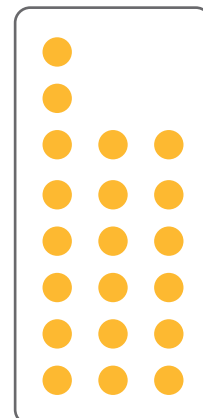
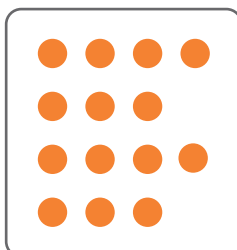
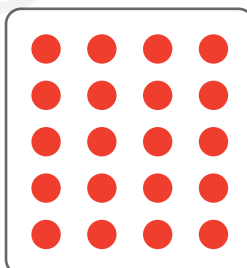
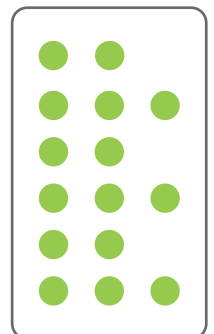
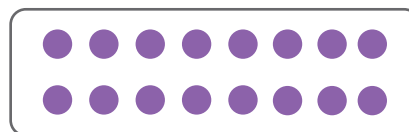
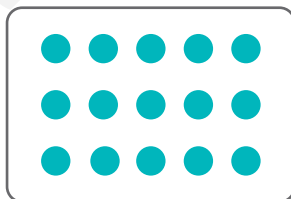
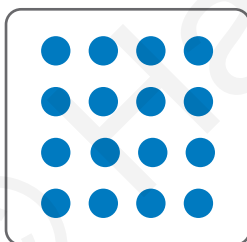
a



b



3 Draw lines to match the equivalent sets.



Number names to 100

- 1** Use different colours. Circle the ball that matches the number name. Then copy the number name in the same colour as the number. The first one has been done for you.

ten

ten

twenty



thirty



forty



fifty



sixty



seventy



eighty



ninety



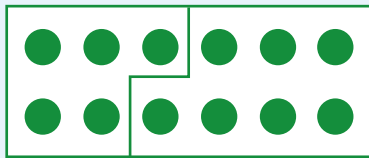
one hundred

- 2** Write these number names using numerals.

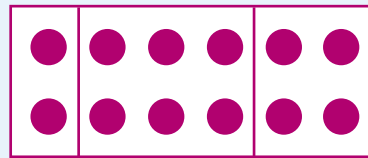
a forty-three
b seventeen
c twenty-eight
d fifteen
e fifty-six
f ninety-five

Partitioning sets

When you **partition** a set, you break the **whole** set into smaller **parts**. You can add the parts to make the whole.



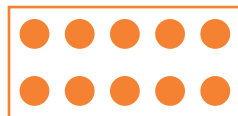
$$5 + 7 = 12$$



$$2 + 6 + 4 = 12$$

1 Partition these numbers. Write sums to show how you partitioned them.

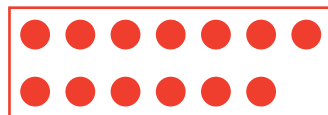
a



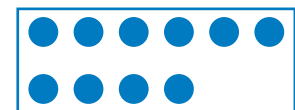
b



c



d



Problem solving

1 Zizi has 20 fruits. She puts them into three jars so that each jar has a different number of fruits. Draw one of the ways she could share them and write a sum to describe your picture.



$$\square + \square + \square = \square$$

2 Compare your work with other students in your class. Use sums to show some other ways they shared the fruits.

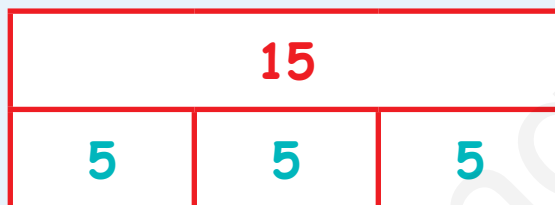
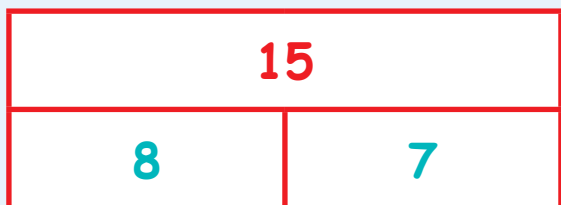
Name: $\square + \square + \square = \square$

Name: $\square + \square + \square = \square$

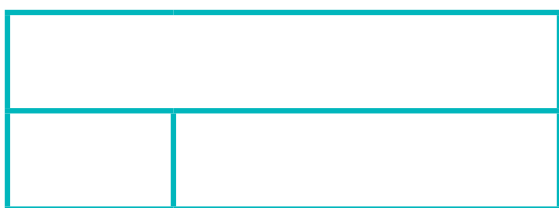
More partitioning

We can use bar models to show partitioning.

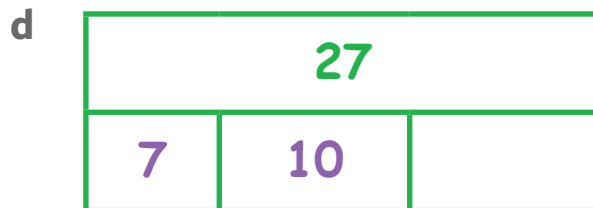
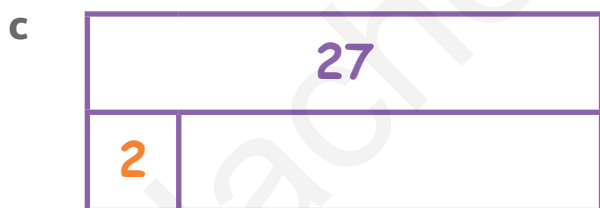
These bar models show two different ways to partition the number 15.



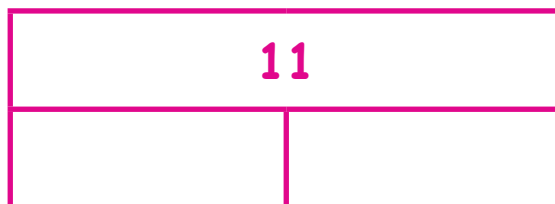
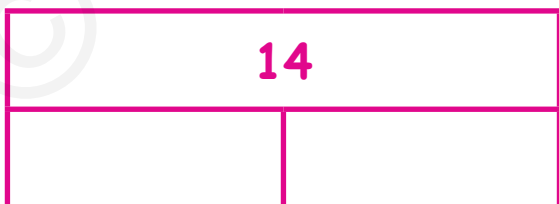
- 1 Show two more ways to partition 15.



- 2 Work out the missing numbers.



- 3 Partition these numbers in any way you like. Show the sum for each bar model.



a $14 = \square + \square$

b $11 = \square + \square$

Renaming tens and ones

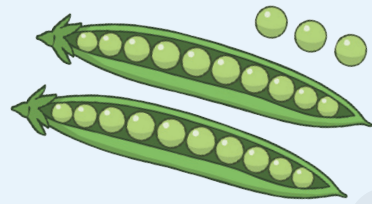
Each pod has ten peas. One pod = 1 ten.

There are two tens and three ones.

We can rename a number by partitioning it into tens and ones.

$23 = 2$ tens and 3 ones

twenty-three



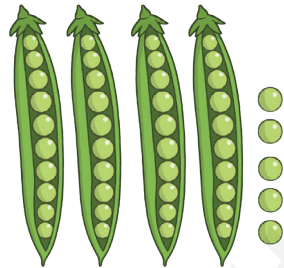
Tens	Ones
2	3

1 Rename each number using tens and ones.

a forty-five

_____ tens

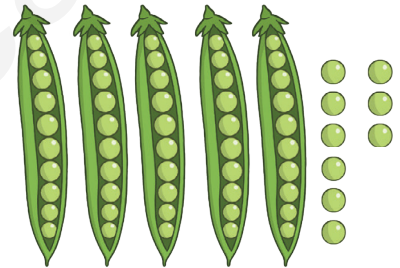
_____ ones



b fifty-nine

_____ tens

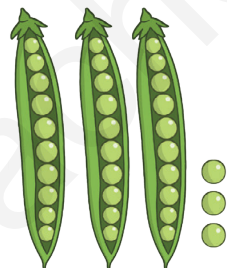
_____ ones



c thirty-three

_____ tens

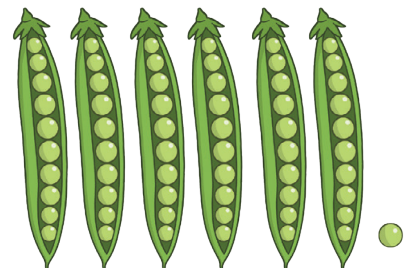
_____ ones



d sixty-one

_____ tens

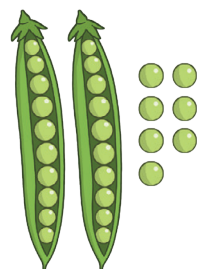
_____ ones



e twenty-seven

_____ tens

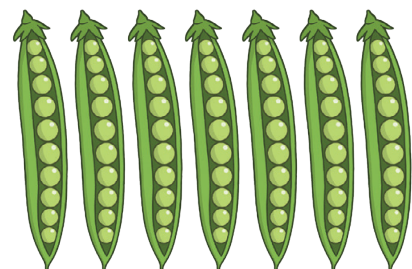
_____ ones



f seventy

_____ tens

_____ ones

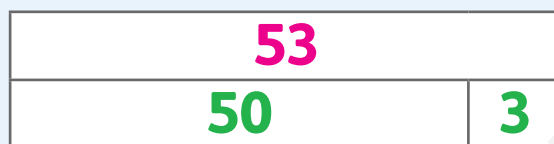


Partitioning tens and ones

We can rename a number as a sum of tens and ones.

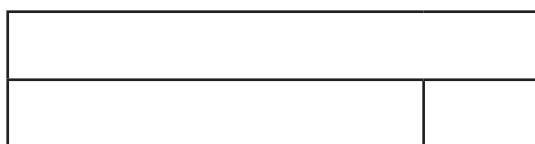
$$\boxed{53} = \boxed{50} + \boxed{3}$$

53 = 5 tens + 3 ones



1 Rename these numbers as tens and ones. Complete each bar model.

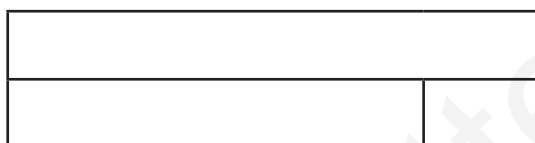
a $\boxed{29} = \boxed{} + \boxed{}$



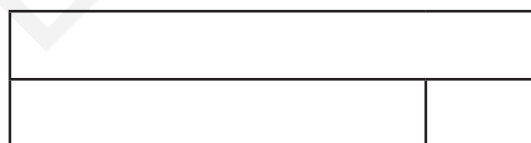
b $\boxed{78} = \boxed{} + \boxed{}$



c $\boxed{50} = \boxed{} + \boxed{}$



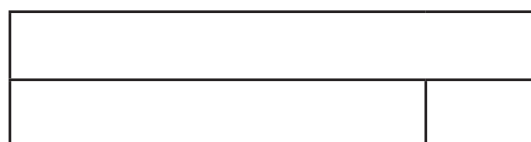
d $\boxed{44} = \boxed{} + \boxed{}$



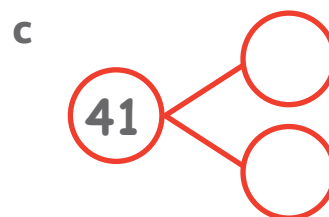
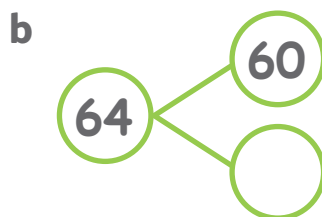
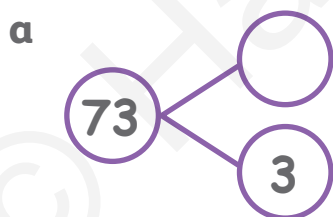
e $\boxed{86} = \boxed{} + \boxed{}$



f $\boxed{61} = \boxed{} + \boxed{}$



2 Partition each number into tens and ones.



Problem solving

Ask an adult to help you use a drawing program on a device. Choose three 2-digit numbers and use shapes to partition them. You can also design your own shapes.

3-digit numbers

- 1** An adult or your teacher can count with you from 100 to 200.
Count together. Discuss what is the same about these numbers.

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200

- 2** Only one number does not start with 1. Discuss which number it is and why.
- 3** Complete the missing numbers in these patterns.

a

123	124		126				
-----	-----	--	-----	--	--	--	--

b

166	167			170			
-----	-----	--	--	-----	--	--	--

c

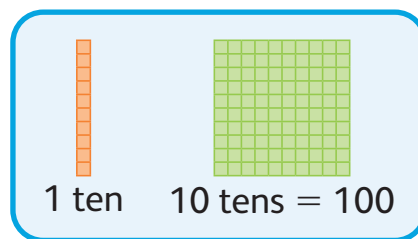
199	198	197					
-----	-----	-----	--	--	--	--	--

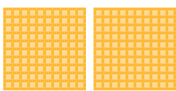
d

156	155	154					
-----	-----	-----	--	--	--	--	--

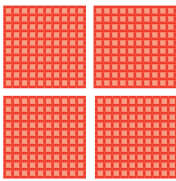
Hundreds

- 1** How many hundreds? Write how many.
Then write the number and number name.
The first one has been done for you.

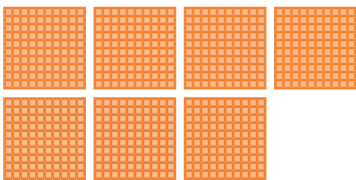


a  hundreds

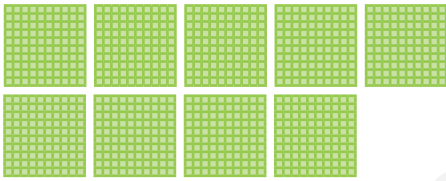
H	T	O
2	0	0

b  hundreds

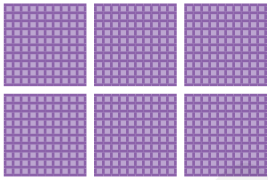
H	T	O

c  hundreds

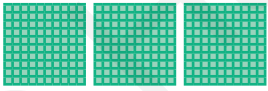
H	T	O

d  hundreds

H	T	O

e  hundreds

H	T	O

f  hundreds

H	T	O

? Problem solving

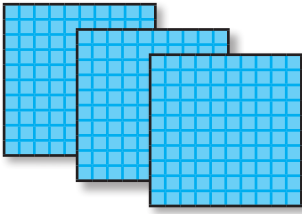
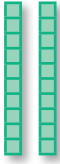
How many hundred-dollar notes do I need to make:

a \$500?

b \$800?



Hundreds, tens and ones

hundreds	tens	ones
		
3	2	5

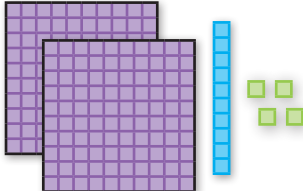
$$3 \text{ hundreds} + 2 \text{ tens} + 5 \text{ ones} = 325$$

H	T	O
3	2	5

$$300 + 20 + 5 = 325$$

1 Complete the place value chart and the sum for each number.

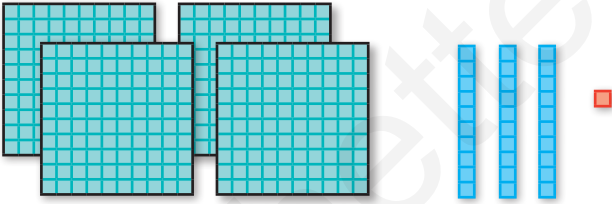
a



H	T	O

 $\underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad}$

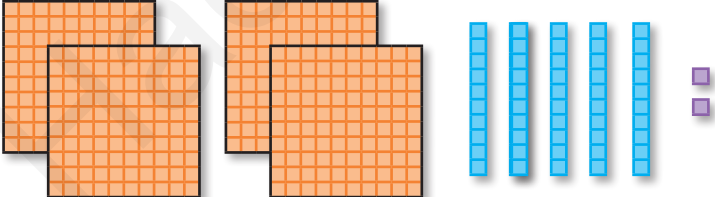
b



H	T	O

 $\underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad}$

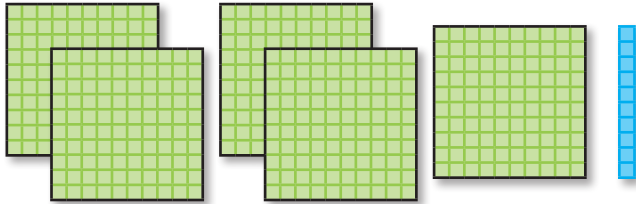
c



H	T	O

 $\underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad}$

d



H	T	O

 $\underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad}$

Thinking about bigger numbers

Imagine that you have counted to 199. The number 199 has 1 hundred, 9 tens and 9 ones.

What is the **next number**? $199 + 1 = 1 \text{ hundred} + 9 \text{ tens} + 10 \text{ ones}$

10 ones = 1 ten

So $199 + 1 = 1 \text{ hundred} + 10 \text{ tens}$

10 tens = 1 hundred

So $199 + 1 = 2 \text{ hundreds} = \mathbf{200}$

1 Write the number that comes next:

a 128 _____ **b** 185 _____ **c** 199 _____ **d** 239 _____

2 Write the number that comes before:

a _____ 235 **b** _____ 311 **c** _____ 520 **d** _____ 400

3 Write the numbers that come between:

a

787						792
-----	--	--	--	--	--	-----

b

438						443
-----	--	--	--	--	--	-----

c

519						524
-----	--	--	--	--	--	-----



Problem solving

1 Jenna has read 100 pages of her book. She reads 25 more.

What page is she on now?

2 Dana has 100 beads and her brother also has 100 beads.

How many do they have altogether?

Challenge



Ask an adult to help you find this website on a device:

<https://apps.mathlearningcenter.org/number-pieces/>

Use the shapes to build three-digit numbers.

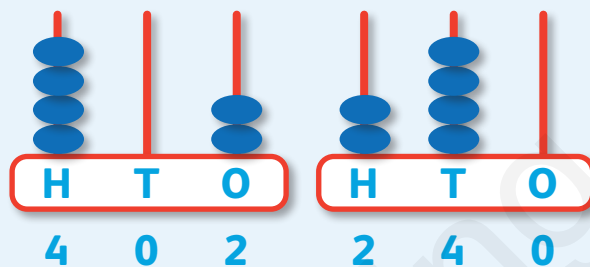
What zero means

When a set is empty, we use the number **zero (0)**.

In bigger numbers, a zero shows that there is nothing in that place.

4 hundreds + 0 tens + 2 ones = 402

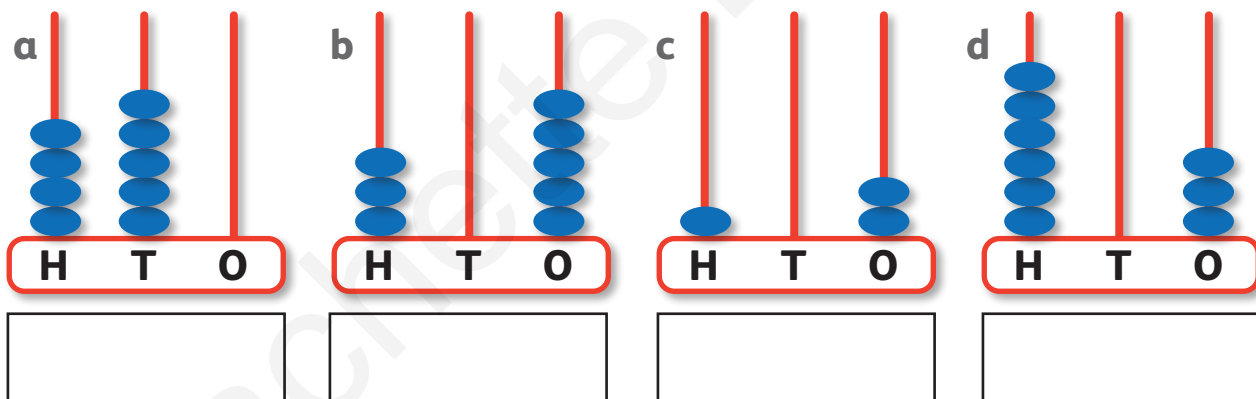
2 hundreds + 4 tens + 0 ones = 240



1 What does the zero show in each number?

- | | | | | | |
|--------------|---|--------------|---|--------------|---|
| a 301 | <div style="border: 1px solid black; padding: 2px 10px;">0 tens</div> | b 30 | <div style="border: 1px solid black; padding: 2px 10px;"></div> | c 120 | <div style="border: 1px solid black; padding: 2px 10px;"></div> |
| d 390 | <div style="border: 1px solid black; padding: 2px 10px;"></div> | e 605 | <div style="border: 1px solid black; padding: 2px 10px;"></div> | f 180 | <div style="border: 1px solid black; padding: 2px 10px;"></div> |

2 Write the number under each abacus.



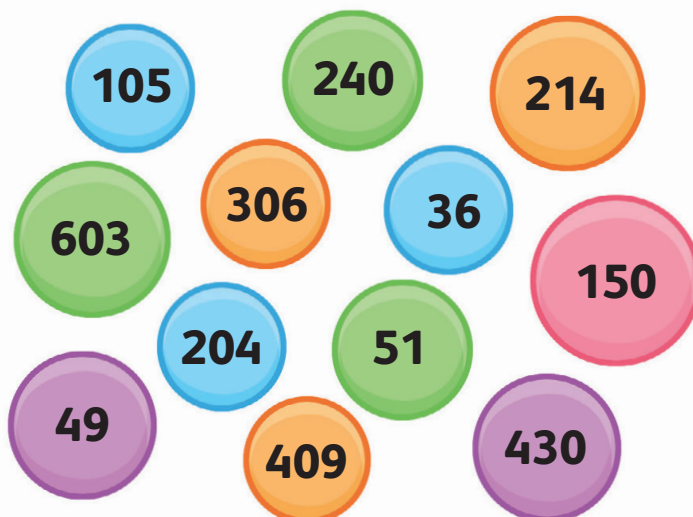
3 Draw a line from each sum to the matching answer.

a $200 + 4$

b $30 + 6$

c $100 + 50$

d $400 + 9$



Place value practice

- 1 Count the hundreds, tens and ones. Write the number on the card. Write the number name underneath.

a

H T O

b

H T O

c

H T O

d

H T O

e

H T O

f

H T O

- 2** Colour the beads to show the correct number. Write the number name underneath. The first one has been done for you.

a

3 2 7

three hundred
twenty-seven

b

4 0 6

c

5 1 9

d

7 5 0

e

6 3 8

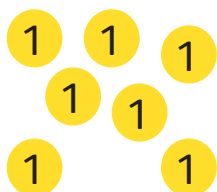
f

2 5 9

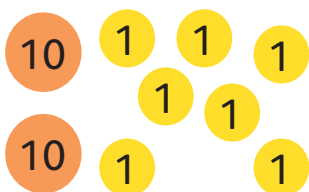
Numbers and number names

We write numbers using the numerals 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

We can also write the number name using words. We add up the ones, tens and hundreds. Then we put them together.



7
seven



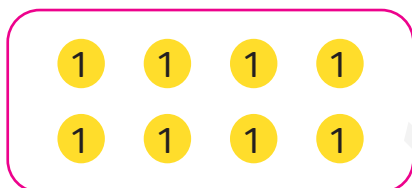
27
twenty-seven



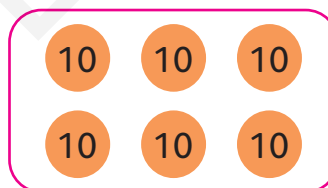
235
two hundred thirty-five

1 Write the numeral and the number name on the line.

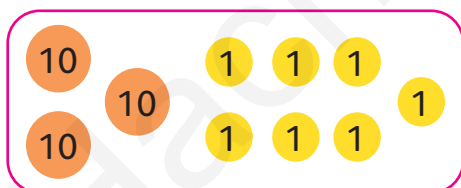
a



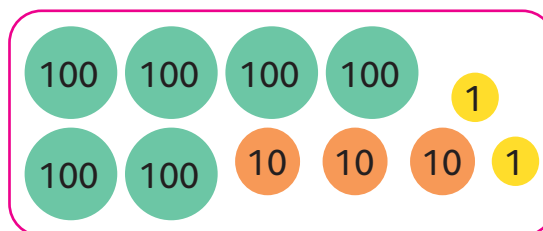
b



c



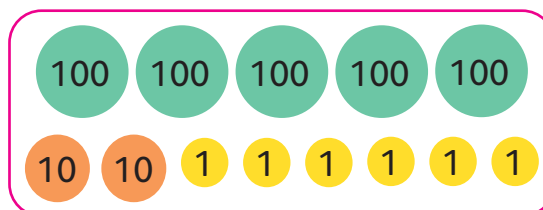
d



e



f



Comparing numbers

When you compare numbers, you can use these signs:

< less than **> greater than** **= equal to**

When you compare 3-digit numbers, first look at the hundreds.

$200 > 133$

$142 < 405$

200 **is greater than** 133

142 **is less than** 405

If the hundreds are the same, look at the tens.

$421 > 400$

$415 < 437$

421 **is greater than** 400

415 **is less than** 437

1 Use the **>** and **<** signs to compare these numbers.

a 105 _____ 205 **b** 318 _____ 218 **c** 500 _____ 700

d 975 _____ 945 **e** 315 _____ 410 **f** 801 _____ 699

2 Complete the table.

	1 more	1 less	10 more	10 less	100 more	100 less
555						
879						
362						



Problem solving

1 Work on a sheet of paper. What is the greatest and smallest number you can make with each set of numbers?

a 5, 8 and 1

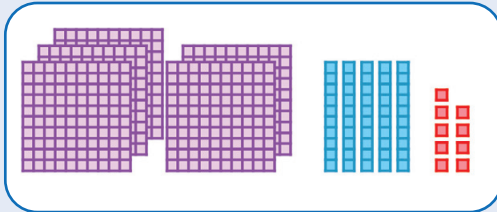
b 2, 9 and 3

2 I have a set of three number cards. The greatest number and the smallest number I can make with the cards are equal. The sum of all the numbers is 15. What are my cards?

Practice

- 1 Look at the base-ten blocks below to write the number and number name being shown.

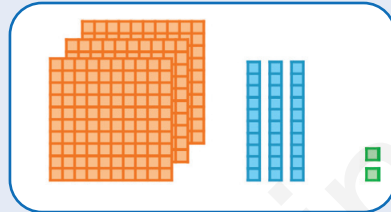
a



Number:

Number name:

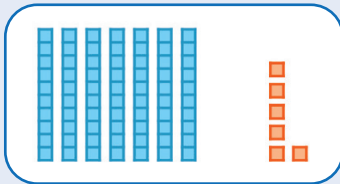
b



Number:

Number name:

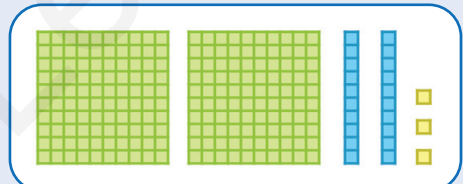
c



Number:

Number name:

d



Number:

Number name:

- 2 Adults have 306 bones. Write this number in words.

- 3 Write the **value** of the underlined digit. The first one has been done for you.

a

729

20

b

488

c

182

d

234

e

108

f

560

4 Complete these to show the number of hundreds, tens and ones.

a 809 = hundreds tens ones

b 435 = hundreds tens ones

c 586 = hundreds tens ones

d 907 = hundreds tens ones

5 What is the **place value** of the underlined digit? The first one has been done for you.

a 622 6 hundreds

b 784

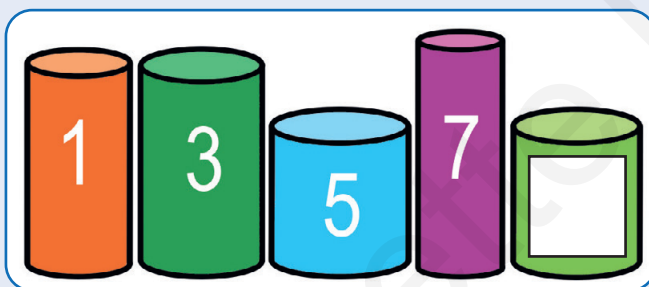
c 374

d 201

e 930

f 300

6 There are five cylinders in a row. Each cylinder has a number on it.



a Are the numbers on the cylinder **odd numbers** or **even numbers**?

b Write the missing number on the last cylinder.

c Set A contains numbers equal to six or less. Set B contains numbers greater than six. Write the numbers from the five cylinders in the correct set.

Set A

Set B

d Which set is greater?

e What addition sum will make the sets equivalent?

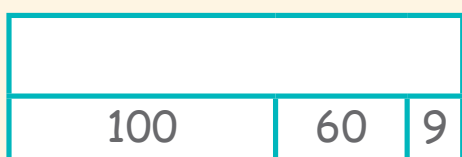
What I have learned

1 Write a 3-digit number. Show it in four different ways.

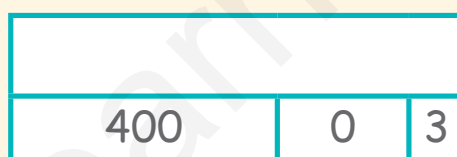
Place value chart			Sum	
H	T	O	_____ + _____ + _____ = _____	
			Number name	Number
			_____	_____

2 Write the number shown in each bar model.

a



b



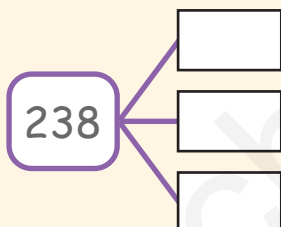
3 Rename these numbers.

a 729 = hundreds, tens and ones

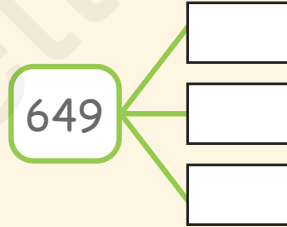
b 973 = hundreds, tens and ones

4 Partition these numbers into hundreds, tens and ones.

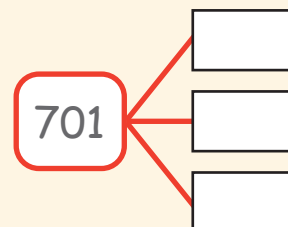
a



b



c



5 This display shows how many cars have driven on the road since midnight. Write the next number that will appear on the display that has:

a 4 tens and 7 ones

b 5 tens

c the same digit in all three places



JAMAICA

Primary Mathematics

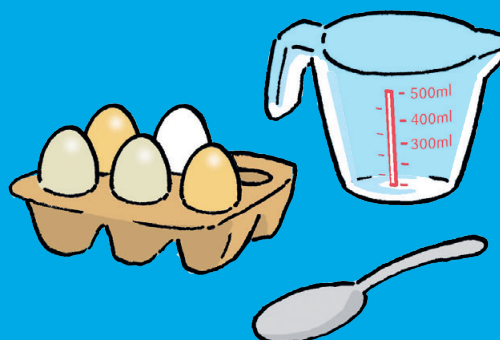
Second Edition

Grade
2

Make maths fun, attainable and relevant with a series specifically designed for Jamaica's National Standards Curriculum by an expert team of authors in consultation with Jamaican educators.

- Enter new topics with exciting chapter openers and Starting point activities to determine prior knowledge and learning readiness.
- Develop analytical skills with features such as Problem solving and Real-life maths activities.
- Provide a solid foundation for learning and PEP preparation at Grades 1–3.
- Consolidate learning at the beginning and end of each chapter with objectives and What I have learned activities.

SAMPLE



Visit us at hachettelearning.com

ISBN 978-1-0360-1940-2

