JAMAICA

Primary Mathematics

NSC Edition

Grade 4

SAMPLE

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HODDER EDUCATION

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Unit 1: Number

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TERM 1

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UNIT 1: NUMBER

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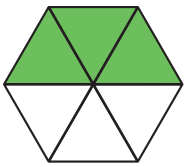

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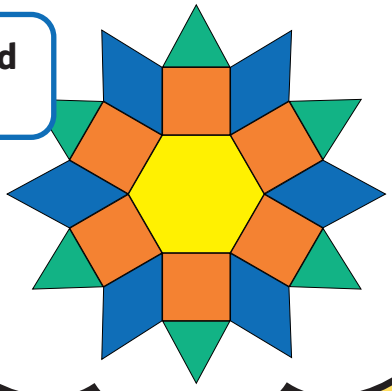

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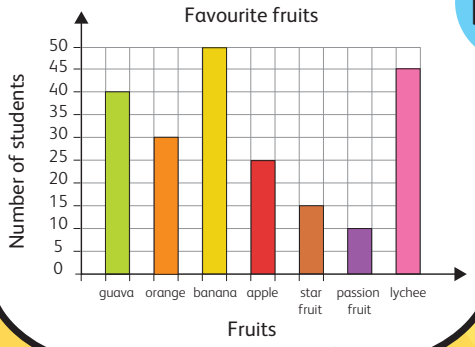

PEP TASK

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Unit 1: Number

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Chapter 1 Number value

In this chapter you will explore this focus question:

How do I know the value of a number?

To answer this question, you will:

- work with numbers that have up to seven digits
- distinguish between value, place value and face value.

Starting point

1 Talk about the picture. What animal makes each **number**?

2 Which ten different numbers could you make if you only had the first three balloons?

3 The **face value** of the zebra is always 5. Its **value** can change depending on the position of the **digits** in a bigger number. This is called **place value**. What place value does 5 have in each of these numbers:

a 3 015 b 580 c 5 600

Key words
number
face value
value
digit
place value

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4 Start a small notebook for maths definitions and examples.
Draw or write definitions of value, face value and place value.

5 Use the picture of the balloon numbers on the previous page. Which animal balloons would you use to make these numbers:

- **a** two thousand, four hundred, forty-seven
- **b** five thousand, three hundred, six
- **c** eight thousand nineteen.

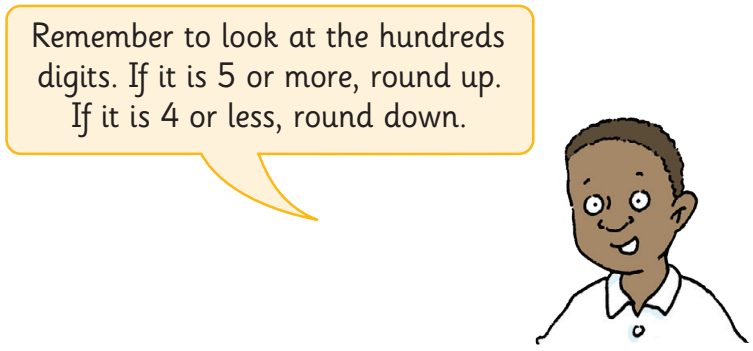
6 **a** Choose four of the animal balloons. Write ten different 4-digit numbers with them. You can use each animal as many times as you like in each 4-digit number.

- **b** Write the numbers in ascending order (from smallest value to largest value).

7 We express a part of the whole using fractions, such as one half or $\frac{1}{2}$. Use what you know about fractions to complete these sentences.

- **a** $\frac{3}{10}$ of the balloons are _____ .
- **b** _____ of the balloons are black-and-white.
- **c** _____ of the balloons are orange.
- **d** _____ of the set is brown.

8 Round the numbers you wrote in Exercise 3 off to the nearest thousand.



Maths detective: Find the mistake!

Work with a partner. Each person writes a 3-digit number and five different number sentences, which give that number as a sum or difference. One of your number sentences should have a mistake. Get your partner to find the mistake!

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Numbers in different forms

Key maths idea

You can write numbers in different ways.

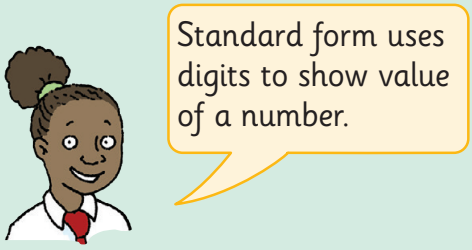
Using **standard form**: 4 627

In a place value chart:

Thousands	Hundreds	Tens	Ones
4	6	2	7

Expanded form: 4 000 + 600 + 20 + 7

Word form: four thousand, six hundred, twenty-seven



Key words
standard form
expanded form
word form

1 Are the numbers given below in standard form, expanded form or word form? Write the form and then write the number in numerals.

- **a** ten thousand one
- **b** 6 054
- **c** 7 000 + 200 + 90 + 8
- **d** 8 000 + 800 + 4
- **e** three thousand thirty-one
- **f** 740

2 Write these numbers using standard form.

- **a** ten
- **b** 10 + 5
- **c** twenty
- **d** 100 + 10 + 0
- **e** 300 + 50 + 7
- **f** four hundred seventy-five
- **g** one thousand
- **h** five thousand three hundred
- **i** 8 000 + eighty-three

3 Write the following numbers in expanded form.

- **a** five thousand fifty-five
- **b** eight thousand twenty-eight
- **c** one thousand, two hundred, nineteen

Working with bigger numbers

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Key maths idea

$10 \times 1\,000 = 10\,000$ We say ten thousand.
$10 \times 10\,000 = 100\,000$ We say one hundred thousand.
$10 \times 100\,000 = 1\,000\,000$ We say one million.

When you work with bigger numbers, it is important to look at the place value. The digit furthest to the left has the **greatest** place value. That means it has the **largest** value. The digit furthest to right has the smallest, or **least**, value.

Look at this number expressed in standard form: 1 435 605

Expanded form: 1 000 000 + 400 000 + 30 000 + 5 000 + 600 + 5

Here is the place value chart:

M	Hth	Tth	Th	H	T	O
1	4	3	5	6	0	5

Word form (read the millions first): **1 million, four hundred thirty-five thousand, six hundred, five**

Key words
greatest
largest
least

1 Write the following numbers using numerals.
- **a** two hundred thousand twenty-five
- **b** five million fifty-three
- **c** three million, three hundred thousand, thirty
- **d** one million, two thousand, eight

2 Write the following numbers using standard form.
- **a** 7 000 000 + 500 000 + 40 000 + 6 000 + 10 + 9
- **b** 400 000 + 7 000 + 600 + 20 + 4
- **c** 2 000 000 + 700 000 + 60 000 + 1 000 + 500 + 10 + 9
- **d** 4 000 000 + 800 000 + 4 000 + 500 + 10

3 Write the following numbers in expanded form.
- **a** 4 678 932
- **b** 702 944
- **c** 3 659 021
- **d** 9 999 999

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Maths detective: Large numbers

Case 1

1 Work in pairs. Write down ten 6-digit numbers you can make using only the digits 1 and 2.

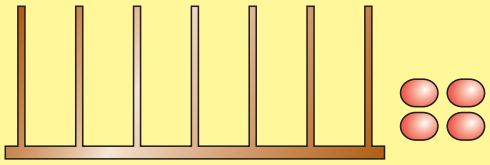
2 Write them in order from least to greatest.

3 Compare with another pair.

Case 2

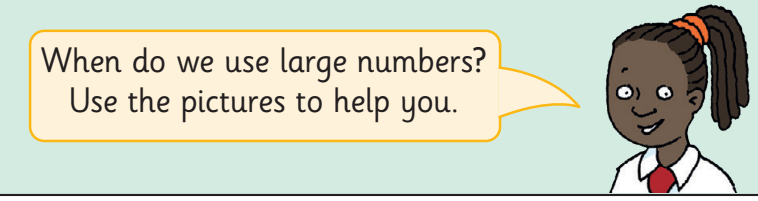
1 Look at the abacus. Make four different numbers. Draw your answers and write the numbers you made.

2 Now write the numbers in order from largest to smallest.



Large numbers

Key maths idea



We use large numbers to talk about the **population** of a country. The Jamaican government holds a **census** every ten years to find out the population size. Each household has to fill in a **questionnaire**. A questionnaire is a list of questions that we use to collect information on a particular topic. The census provides **information** about the population and helps the government to plan its services.

Key words
population
census
questionnaire
information

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Population of Jamaica

Parish	Population (2018)	Parish	Population (2018)
1 Kingston and St Andrew	669 773	8 Hanover	70 265
2 St Thomas	94 939	9 Westmoreland	145 628
3 Portland	82 643	10 St Elizabeth	151 839
4 St Mary	114 867	11 Manchester	191 881
5 St Ann	174 203	12 Clarendon	247 702
6 Trelawny	75 981	13 St Catherine	521 249
7 St James	185 697		
Total population	**2 726 667**		

(Source: Statistical Institute of Jamaica, adapted from: https://statinja.gov.jm/Demo_SocialStats/EndofYearPopulationbyParish.aspx)

1 Use the information in the table to answer the following questions.

- **a** Which parish has the largest population?
- **b** Which parish has the smallest population?
- **c** What is the total population of Jamaica?
- **d** Choose 2 parishes that would have over 1 000 000 people if they were added together.
- **e** How many more people live in parish 3 than in parish 8? Show how you work this out.
- **f** Write the population numbers of parishes 2 to 6 in ascending order.
- **g** Add together the populations of parishes 4, 5 and 6.

2 Draw a place value chart and put the smallest population number digits in the correct columns.

- **a** Write the number in expanded form.
- **b** Write the number value for each digit.
- **c** Write the place value for each digit.

3 Draw another place value chart and put the total population number in the correct columns.

- **a** Write the number in expanded form.
- **b** Write the number value for each digit.
- **c** Write the place value for each digit.

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Real-world maths: Number of students in a school

1 Why is it important to know how many children are at your school? Discuss this with your class.

2 a Make a questionnaire to find out the number of students and staff at your school, and how many children are in each class and grade.

b Use the questionnaire to collect the information.

3 List the following results:

a What is the total population of the school?

b How many of these are students and how many of these are staff?

c Which is the largest grade group?

d What is the difference in numbers between the largest and smallest grade group?

Real-world maths: Making big purchases

Choose one of the following problems to investigate.

1 Malia needs to buy a car for her cupcake business. These are her requirements:

- It should be a hatchback so that she can easily pack deliveries into the back.
- It must be no older than 3 years.
- It must have less than 20 000 km mileage.
- The budget is maximum $3 250 000.

Use a newspaper or look online (for example, *jamaicars.com*). Identify three possible cars Malia could buy that would fit her requirements.

Discuss with a partner which would be the best buy.

2 Your family wants to buy a new big-screen TV set.

- The screen must be 55 inches or larger.
- It must be a smart TV, with WiFi and Bluetooth.

Use the newspaper or internet to identify three possible products at different prices. Compare the prices and explain why each is cheaper or more expensive than the others. Identify which is the best buy and explain why you would choose that one.

Real-world maths: A museum visit

A visit to the Bob Marley Museum in Kingston costs a family of three $5 500. If they paid for it with 1 000-dollar bills, how many would they need? If they paid with 500-dollar bills, how many would they need? If they paid with 100-dollar bills, how many would they need?

Maths detective: Code crackers

Now use your skills to solve these cases!

Case 1

Chris Anderson scored over fifteen thousand runs in One Day International test cricket. The secret number is a whole number with 5 digits. The digit in the ones place is the product of 3 × 3. The digit in the hundreds place is an even number that is smaller than 8 but larger than 4. The digit in the thousands place is equal to the quotient of 21 and 3. The digit in the ten-thousand place is the numerator in every unit fraction and the digit in the tens place is a factor of 10, 15 and 20. Using all the clues you should know the amount of runs by now.

1 What is the secret number?

2 Write the secret number in word form.

Case 2

Now see if you can find this number:
I am a 4-digit number between 5 500 and 7 000.
I am odd.
I am a multiple of 5.
The digit in the thousands place is 1 more than the digit in the ones place.
The sum of my digits is 19.
The digit in the tens place is 3 more than the digit in the ones place.
Which number am I?

Case 3

Can you find this number?
I am a 4-digit number.
I am even.
The digit in the ones place is 3 times larger than the digit in the thousands.
The digit in the tens place is 5 less than the digit in the ones place.
The digit in the hundreds place is 8 more than the digit in the tens place.
The sum of my digits is 18.
Which number am I?

SAMPLE

SAMPLE

Case 4

Calculate a value for each of the letters of the alphabet. Then use these values to help you crack the code and read the message below.

A	the digit in the thousands place of 415 925		M	10 × 5 makes this product	
C	the place value of the 7 in the number 24 718		N	1 quarter of 1 000	
D	10 of these make 400		O	the first even number	
E	the greatest 1-digit number		P	the digit in the hundred thousands place in the number 4 352 129	
F	the only digit that is not a natural or counting number		S	the number of digits in five thousand	
G	the greatest 2-digit number		T	the smallest 3-digit number	
H	the face value of the 1 in the number 1 million		U	5 of these make one hundred	
I	the number of digits in the number 2 153 990		W	the number that multiplied by itself makes 100	
K	the number of digits in half a million		X	if you divide 4 000 by ten, you get this	
L	the digit in the thousands place in 1 982 571		Y	half of 1 000	

1	2	10

40	2

500	2	20

100	9	5	700	1

50	5

1	4

100	2		5

700	1	7	700	6	9	250	
							?

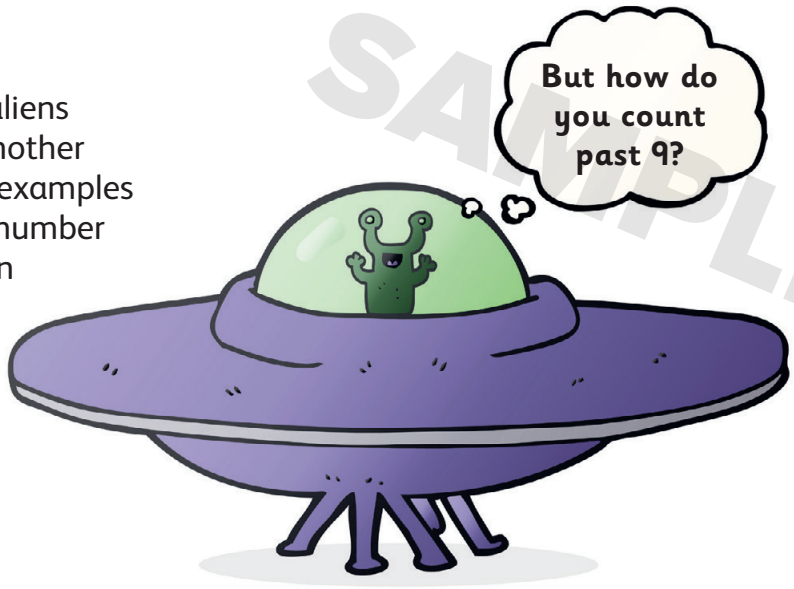
8	2	100	4

2	0

9	99	99		4	5	50	3	8	9	4	
			–								!

What I have learned

Imagine that a spaceship full of aliens has arrived at your school from another planet. Use diagrams and simple examples to explain to them how we use a number system with ten numerals that can show numbers big enough to represent the distance between their planet and ours.



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Practice questions

1 a Write the smallest possible 7-digit number you can using the digits 1, 5, 7 and 2.
  b Now write the greatest possible 7-digit number using the same digits.
  c Use one of the numbers you made to explain the difference between face value, place value and value of a number.
  d Use one of the numbers you made to show how we write a number in expanded form.

2 Explain in your own words what we mean by:
  a standard form
  b expanded form.

3 Give three examples of things that cost more than $1 million.

4 Write the value of 6 in each number.
  a 609 773 b 94 639 c 685 597
  d 4 892 306 e 6 987 032

5 Draw a place value chart. Fill the numbers in on the chart.
  a 4 533 b 56 709 c 345 981
  d 9 882 431 e 602 f 44 320

6 Write this set of numbers in numerals, then order from smallest to largest.

- eighty-two thousand, seven hundred, eighty-four
- two hundred forty-seven thousand, four hundred, fifteen
- six million, six hundred six thousand, eight hundred, fifty-five
- four million, seven hundred ten thousand, three hundred, one
- three million, seven hundred thousand, forty

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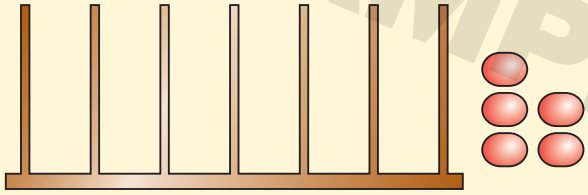
7 Look at the abacus and answer the questions.

a What is the largest number you can make using 5 beads? Draw your answer and write the number.

b What is the smallest number you could make? Draw your answer and write the number.



1 Self check

Check you can do this:	If you have difficulty, try this:
1 Write any 4-digit number. Give the value, place value and face value of each digit. Try it with this number: 5 847	Go to page 7 and revise what we mean by place value, face value and value.
2 Can you identify the value of numbers with 5, 6 or 7 digits? Try it with these numbers: 12 384 349 750 1 438 885	Go to page 10 and practise putting numbers into place value charts to identify the value of each digit.
3 Can you put numbers into expanded form? Try it with this number: 8 156 209	Go to page 9. Think about expanding each digit to show its full value and expressing it as an addition sum.
4 Give some examples of when we need to use 7-digit numbers. Think of two things we might buy that might have 7-digit prices.	Go back to pages 10 and 11 and refresh your memory!

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Grade 4

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