Alavi

Mathematics

Learner's Book

5

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Introduction

The Primary Mathematics brings together the world-class Cambridge Primary mathematics curriculum from Cambridge International Examinations. It is an innovative combination of curriculum and resources designed to support teachers and learners to success in primary mathematics through best-practice international maths teaching and a problem-solving approach.

The Cambridge curriculum is dedicated to helping schools develop learners who are confident, responsible, reflective, innovative and engaged. To this end, the textbooks provide support based on pedagogical practice found in successful schools around the world. This series is arranged to ensure that the curriculum is covered whilst allowing teachers to use a flexible approach.

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CHAPTER 1

What learners will learn and reinforce

The activities in this chapter give learners practice in the following topics:

Topic	In this topic, learners will:
1.1. Exploring large numbers	read, write and partition numbers.
1.2. Multiples and squares	identify multiples and square numbers.
1.3. Factors and divisibility	learn the factors of a given number. test if a number is divisble by 2, 5 and 10.

Word bank

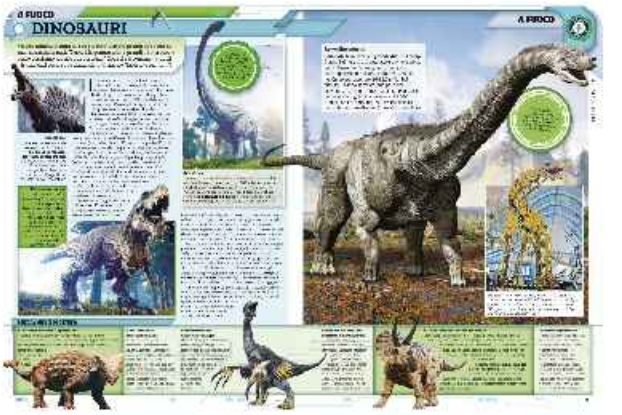
1	hundred millions	2	ten millions	3	millions	4	hundred thousands
5	ten thousands	6	thousands	7	hundreds	8	tens
9	ones (units)	10	large numbers	11	standard form	12	expanded form
13	number word form	14	billions	15	figure	16	multiple
17	square number	18	factor	19	divisble	20	trillions

1.1. Exploring large numbers

The world's all-time best-selling copyright book is Guinness World Records.

From October 1955 to June 2002, 94 767 083 copies were sold.

Suppose the number is written in this place-value chart. Where will the digits 9 and 4 appear?



Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

These patterns in the place-value system may help you read and write large whole numbers.

- From right to left, each group of 3 place values is called a period.
- Within each period, the digits of a number are read as hundreds, tens, and ones.
- Each position represents ten times as many as the position to its right, for example, 2 hundreds = 20 tens and 4 ten thousands = 40 thousands.

This place-value chart shows the number of items in the world's largest collection of matchbook covers, 3 159 119.

Millions Period			Thousands Period			Units Period		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
		3	1	5	9	1	1	9
		3 000 000	100 000	50 000	9000	100	10	9

We read this number as:

three million one hundred fifty-nine thousand one hundred nineteen.

When we read large numbers, we say the period name after each period except the units period.

We leave a space between the periods when we write a number with 5 or more digits.

We can write this number in:

- standard form: 3 159 119
- expanded form: 3 000 000 + 100000 + 50 000 + 9000 + 100 + 10 + 9
- number-word form: 3 million 159 thousand 119

The place-value chart can be extended to the left to show greater whole numbers.

One thousand million is one billion.
One thousand billion is one trillion.

This place-value chart shows the approximate number of cells in the human body.

Trillions			Billions			Millions			Thousands			Units		
H	T	O	H	T	O	H	T	O	H	T	O	H	T	O
	5	0	0	0	0	1	0	0	0	0	0	0	0	0

We write: 50 000 100 000 000

We say: fifty trillion one hundred million.

Write each number in standard form.

a) 20 000 000 + 4 000 000 + 300 000 + 40 000 + 2000 + 500 + 80 + 4

.....

b) 6 million 276 thousand 89

.....

c) two billion four hundred sixty million sixty-nine thousand eighteen

.....

Write the number that is:

a) 10 000 more than 881 462 ➡ .....

b) 100 000 less than 2 183 486 ➡ .....

c) 1 000 000 more than 746 000 ➡ .....

d) one million less than 624 327 207 ➡ .....

China is the most populated country in the world. In 2007, it had an estimated population of one billion three hundred twenty-one million eight hundred fifty-one thousand eight hundred eighty-eight.
Write this number in standard form and in expanded form.

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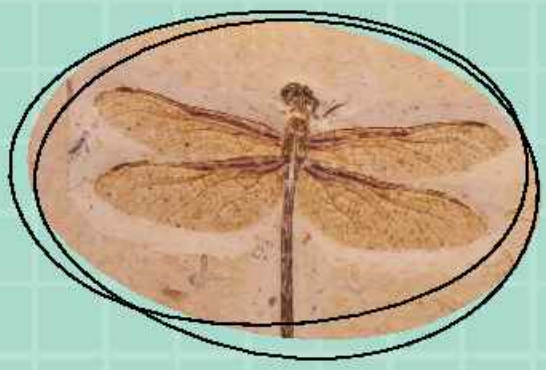
The largest known prehistoric insect is a species of dragonfly.
It lived about 280 000 000 years ago.
Write this number in words.

.....



Write these numbers in figures:

a) one million .....

b) five hundred thousand and five .....

c) four hundred and three thousand, and thirty four .....

The population of Canada was about 32 980 000 in July 2007.
Data show that there were about 497 cellular phones per 1000 people in that year.
How many cellular phones were there in Canada in 2007?

.....

Hint: this is a 2-step problem.

First, find how many groups of 1000 there are in 32 980 000.

To find how many equal groups, divide:

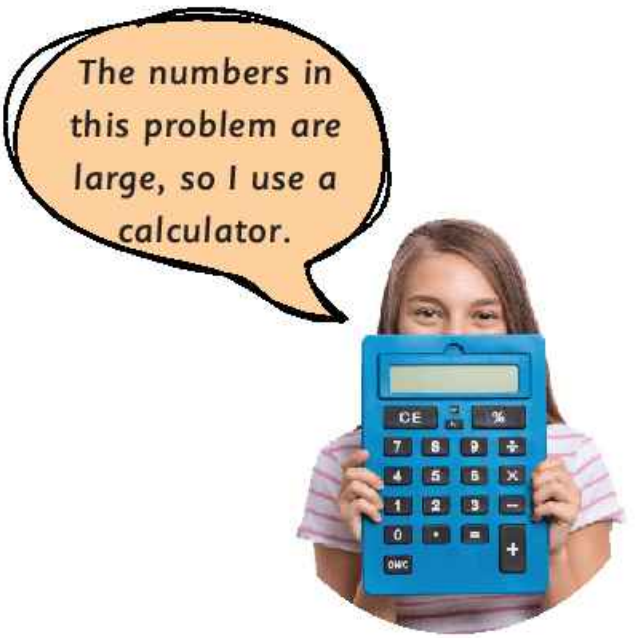
$32\,980\,000 \div 1000 = 32\,980$

There are about 497 cellular phones for one group of 1000.

To find how many cellular phones for 32 980 groups of 1000, multiply:

$32\,980 \times 497 = 16\,391\,060$

There were about 16 391 060 cellular phones in Canada in 2007.



1.2. Multiple and squares

Remember

Multiples are like numbers in the times tables but they go on and on, for example:

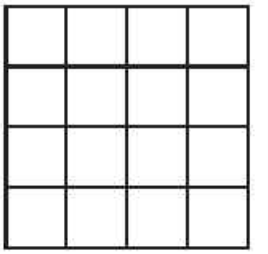
Multiples of 5 are: 5, 10, 15, 20, ... 90, 95, 100, 105, ...

Multiples of 9 are: 9, 18, 27, 36, ... 90, 99, 108, 117, ...

Square numbers are made by multiplying two identical whole numbers, for example:

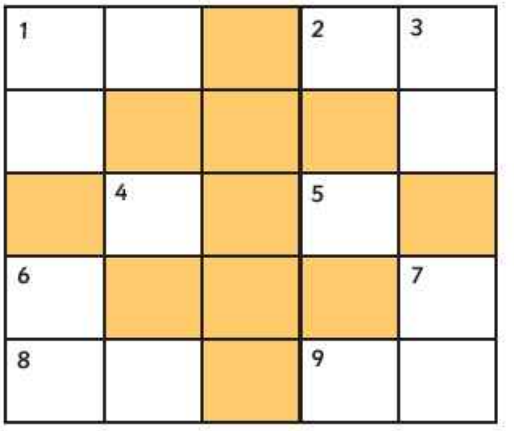
$4 \times 4 = 16$

16 is a square number.



1. Complete this cross number puzzle.

Across	Down
1) 6×8	1) 6×7
2) 9×9	3) 3×6
4) $24 \div 6$	6) 6×6
5) $63 \div 7$	7) 8×3
8) 10×6	
9) 7×2	



Design a crossword puzzle with multiplication and division problems as clues. Swap puzzles with your partner.