

**Collins**

**Book  
A**

# English for Mathematics

**Karen Greenway**

Series Editor: Mary Wood

**measure**

**divide**

**minus**

**+**  
**equals**

**multiply**

**time**

**fraction**

**%**

**NTV**

Công ty TNHH  
Nhân Trí Việt



NHÀ XUẤT BẢN TỔNG HỢP  
THÀNH PHỐ HỒ CHÍ MINH



## Introduction

This series of books is aimed at non-native English speakers who attend English language mathematics lessons in primary school. The books aim to support those who find the language used in the lesson unfamiliar and challenging.

Some of the language of mathematics is rarely used outside the classroom. It may, hence, be unfamiliar to those students who don't speak English as their first language. In some cases, words and phrases can have a different meaning in the mathematics classroom to their meaning in common usage. This can lead to confusion and frustration and can hinder progress.

The *English for Mathematics* series aims to teach students the language used for mathematics taught in primary school. Key words and language structures are explained, using diagrams and illustrations to aid understanding. The 'Wise Owl' gives tips and hints on how to use the language, allowing learners to check their understanding. Carefully graded activities linked to the topic and the focus vocabulary give give opportunities to practise using the language.

Each of the 36 units includes notes to teachers or parents, which give ideas for how to present the language and topics to learners. The books can be used in class alongside the main textbook or at home for further practice and reinforcement.

The clear, easy-to-use layout together with the appealing and helpful pictures and diagrams will help de-mystify the English of mathematics.

Mary Wood, Series Editor

# English for Mathematics: Book A

Karen Greenway

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# Read and write numbers to 1000

## Read it!

**Key words:** digit, place, place value, unit, ten, hundred, thousand

The **digits** 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 are used to write all numbers. The position of a **digit** in a number gives its **place value**.

hundreds	tens	units
H	T	U
8	2	9

**Example:**

**Question:** Write the number 546 in words.

**Answer:** five hundred and forty-six

We write questions about **place value** in different ways.

H	T	U
7	1	8

**Question:** Which digit is in the tens place?

**Answer:** 1

**Question:** What is the value of the 7 in this number?

**Answer:** seven hundreds (or 700)

## Language focus

### Units/Multiples of 10

two/twenty, three/thirty, four/forty, five/fifty, six/sixty, seven/seventy, eight/eighty, nine/ninety

The number after

H	T	U
9	9	9

is

thousands

Th	H	T	U
1	0	0	0

This is called one thousand.

## Think about it!

1. Write nine hundred and twenty-three in digits.

---

2. Write 472 in words.

---

3. What is the value of the 5 in 953?

---



**Practise it!**

1. Write the 6 in the tens place.

Write the 3 in the units place.

Write the 1 in the hundreds place.

Write the whole number in words. \_\_\_\_\_


2. 

7	0	9
---	---	---

 (a) What is the value of the 7 in this number? \_\_\_\_\_  
 (b) Which digit is in the units place? \_\_\_\_\_

3. Benny has 3 digit cards.



He places them on this diagram to make different 3-digit numbers.

--	--	--

- (a) Write the largest number he makes in words. \_\_\_\_\_  
 \_\_\_\_\_
- (b) Write the smallest number he makes in digits. \_\_\_\_\_  
 \_\_\_\_\_
- (c) List all of the other numbers that he makes. \_\_\_\_\_  
 \_\_\_\_\_

**Teachers' and parents' note**

Encourage students to use a place value diagram and digit cards to make, read and write different numbers.

Discuss the use of zero in the number 502 as a place holder – there are no tens but we cannot leave the column blank as the number would become 52.

H	T	U



# Partition numbers

## Read it!

**Key words:** partition, hundreds, tens, units

Numbers are split into **hundreds**, **tens** and **units** to make them easier to use in calculations. This is called **partitioning**.

H	T	U
3	7	2

= 3 hundreds + 7 tens + 2 units  
= 300 + 70 + 2

**Example:**

**Question:** Partition 694.

**Answer:** 6 hundreds + 9 tens + 4 units or  
600 + 90 + 4

## Language focus

### Focus words

Everyday meaning of **partition**: a screen dividing a room into parts



Mathematical meaning of **partition**: split a number into parts, for example,  $27 = 20 + 7$

Zero is used as a place holder.

The number nine hundred and five is written as 905.

H	T	U
9	0	5

Without the zero holding the tens place, the number would be ninety-five written as 95.

↑  
place holder



## Think about it!

Write a digit in each box to make the partitioning correct.

1.  $836 = \square \text{ hundreds} + 3 \text{ tens} + \square \text{ units}$

2.  $2\square 7 = 2 \text{ hundreds} + 4 \text{ tens} + \square \text{ units}$

3.  $59\square = \square \text{ hundreds} + 9 \text{ tens} + 8 \text{ units}$



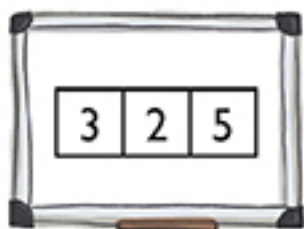
**Practise it!****1. Partition these numbers.**Example:  $475 = 400 + 70 + 5$ 

(a) 143 \_\_\_\_\_

(b) 609 \_\_\_\_\_

(c) 827 \_\_\_\_\_

Numbers are partitioned in different ways to help in different calculations.

 $325 = 3 \text{ hundreds} + 2 \text{ tens} + 5 \text{ units}$ or  $3 \text{ hundreds} + 1 \text{ ten} + 15 \text{ units}$ or  $2 \text{ hundreds} + 12 \text{ tens} + 5 \text{ units}$ **2. Gustav partitions the number 536.**

Here are his answers.

$500 + 30 + 6$

$400 + 120 + 6$

$500 + 20 + 16$

$400 + 110 + 26$

$500 + 10 + 16$



Tick all the correct answers.

**3. Partition 269 in four different ways.**


---



---



---



---

**Teachers' and parents' note**

Find examples of three-digit numbers in the real world, for example, on car registration plates. Partition each number into hundreds, tens and units.

Find examples of numbers that include a zero. Read the number and then remove the zero and read the new number. For example:

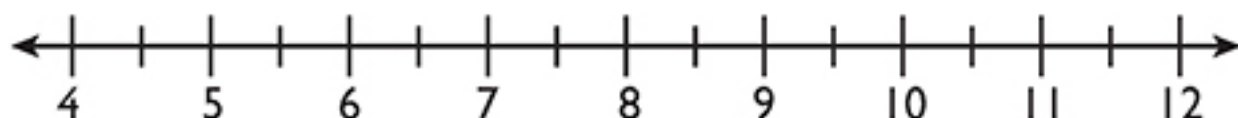
 $605 = \text{six hundred and five}$  $65 = \text{sixty-five}$

# Order and compare numbers

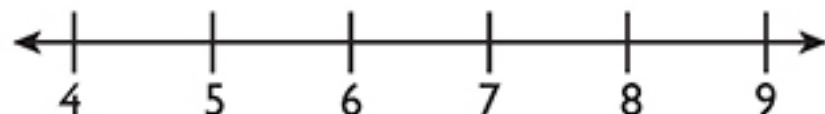
## Read it!

**Key words:** compare, in between, greater than, largest, less than, order, smallest

Numbers on a number line are **in order**.



The numbers 5, 6, 7 and 8 are **in between** 4 and 9.



A list of numbers is put **in order** from **smallest** to **largest**

23, 27, 35, 52, 73, 75

or from **largest** to **smallest**.

399, 359, 319, 279, 239

**Example:**

**Question:** Which numbers are in between 21 and 25?

**Answer:** 22, 23 and 24

The symbols  $<$  and  $>$  are used to **compare** numbers.

$>$

means

**greater than**

$100 > 95$

$<$

means

**less than**

$47 < 50$

## Language focus

### Opposites

$>$   
greater than  
larger than  
more than  
higher than

$<$   
less than  
smaller than  
less than  
lower than

If the numbers are the same, use the equals ( $=$ ) sign.



**Think about it!**

- 1. Put these numbers in order from smallest to largest.**

30, 16, 3, 6, 23, 20

---

- 2. Put these numbers in order from largest to smallest.**

205, 125, 250, 152, 175

---

**Practise it!**

- 1. Write a whole number that is in between:**

(a) 12 and 15 \_\_\_\_\_

(b) 64 and 69 \_\_\_\_\_

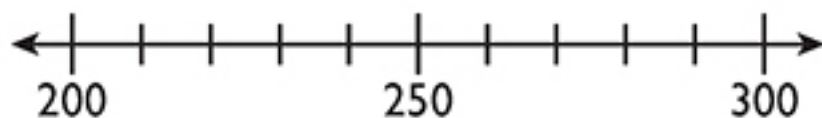
(c) 138 and 142 \_\_\_\_\_

(d) 599 and 605 \_\_\_\_\_

- 2. Write  $>$  or  $<$  in each circle to make these statements correct.**

(a) 19  26(b) 55  51(c) 210  208(d) 391  400

- 3. Draw a line to join each number to the correct place on the number line.**

**235****207****299****261****Teachers' and parents' note**

Give students experience of ordering numbers using number cards or on blank number lines. Using an image such as the open mouth of a greedy crocodile (or other appropriate animal) may help students remember that  $>$  means 'greater than' and  $<$  means 'less than', as the crocodile always eats the larger number.



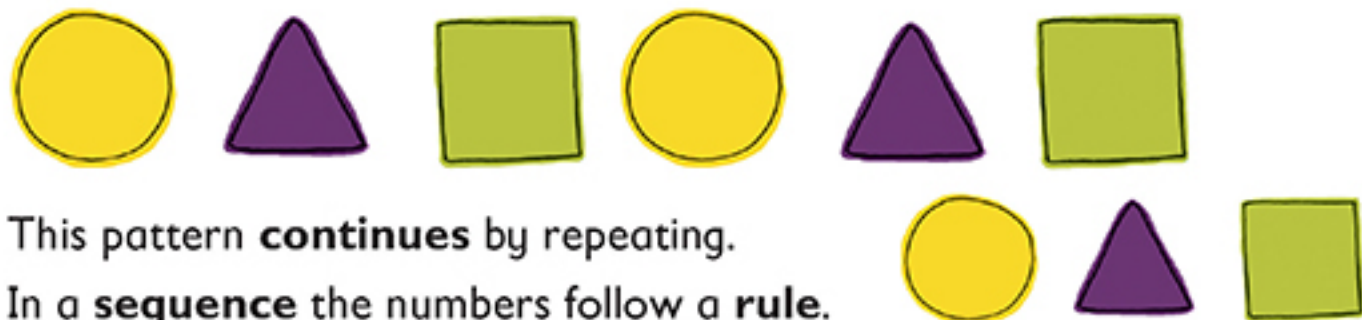


# Patterns and sequences

## Read it!

**Key words:** count on, count back, continue, pattern, rule, sequence

A **pattern** is a repeating set of objects such as shapes or numbers.



This pattern **continues** by repeating.

In a **sequence** the numbers follow a **rule**.

In this sequence

1, 3, 5, 7, 9 ...

the rule is **count on** (↗) in twos.

**Example:**

**Question:** What is the next number in this pattern?

2 2 3 3 2 2 3 3

**Answer:** 2

**Count on** (↗) in tens.



123, 133, 143, 153 ...

**Count back** (↖) in ones.

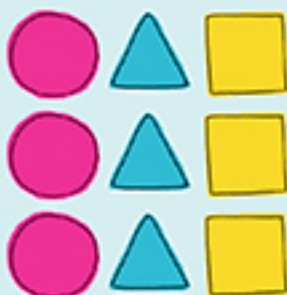


97, 96, 95, 94 ...

## Language focus

Everyday meaning of **pattern**: a template for making clothes or a design on wallpaper or fabric

Mathematical meaning of **pattern**: a repeating set of shapes or numbers



We can count on and back to help us remember larger numbers and to describe sequences.



**Think about it!**

**Here is a number sequence: 5, 10, 15, 20 ...**  
**The rule is count on in fives.**

Write the next three numbers in the sequence.

5, 10, 15, 20, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

**Practise it!**

**1. Write the next three numbers in these sequences.**

(a) Count on in hundreds.

150, 250, 350, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

(b) Count back in tens.

142, 132, 122, 112, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

(c) Count on in threes.

1, 4, 7, 10, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

**2. Colour the blank shapes to continue these patterns.**



**3. Here is a number sequence: 22, 24, 26, 28 ...**

(a) What is the next number in the sequence? \_\_\_\_\_

(b) What rule did you use to continue the sequence? \_\_\_\_\_

**Teachers' and parents' note**

Use sets of objects such as counters and shapes to make and extend patterns.

Encourage students to count out loud in units, tens and hundreds to develop larger numbers and sequences.



# Rounding

## Read it!

**Key words:** round, round down, round up, round to the nearest

A number is **rounded to the nearest** 10 or 100 when an accurate answer is not needed.

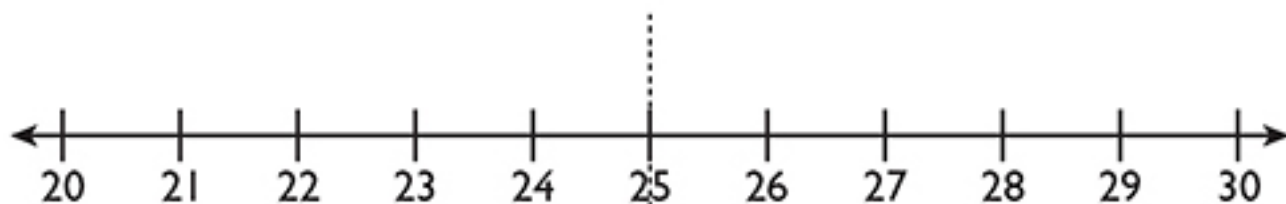
**Example:**

**Question:** How many children were in the concert?

**Answer:** About 10



This number line shows how to **round to the nearest** 10.



**Round down** if the number is **less than** halfway to the next ten, so 24, 23, 22 and 21 round to 20.

**Round up** if the number is **more than** halfway to the next ten, so 26, 27, 28 and 29 round to 30.

25 is exactly halfway to 30.  
This number always **rounds up**.

**Example:**

**Question:** Round 32 to the nearest 10.

**Answer:** 30

## Language focus

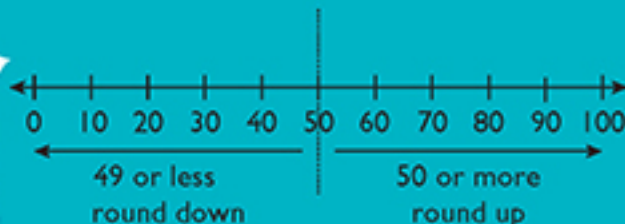
### Focus words

Everyday meaning of **round**: something that is circular – a circle or plate is round

Mathematical meaning of **round**: take a number to the nearest 10 or 100



On the number line to 100, the number 50 is halfway. Numbers that are less than 50 **round down** and numbers that are more than 50 **round up**. The number 50 also **rounds up**.





## Think about it!

1. Round these numbers to the nearest 10.

(a) 17 \_\_\_\_\_ (b) 45 \_\_\_\_\_ (c) 63 \_\_\_\_\_

2. Round these numbers to the nearest 100.

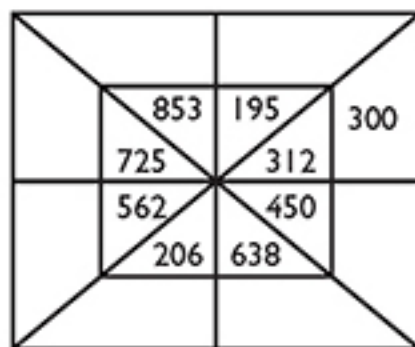
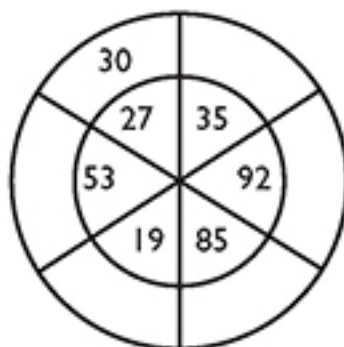
(a) 150 \_\_\_\_\_ (b) 594 \_\_\_\_\_ (c) 325 \_\_\_\_\_

## Practise it!

1. Fill in the circle and rectangle.  
Round each number ...

(a) in the circle to the nearest 10.

(b) in the rectangle to the nearest 100.



2. Round the number of people at each event to the nearest 100.

(a) concert: 475 people \_\_\_\_\_

(b) museum: 234 people \_\_\_\_\_

(c) sports event: 750 people \_\_\_\_\_

3. The table below shows the fruit sold by a shop on one day.

Round each number to the nearest 10.

Fruit	Number sold	Round to nearest 10
apples	83	
bananas	60	
melons	18	
oranges	45	

## Teachers' and parents' note

Discuss situations where rounding is used in real life, for example, the number of people at an event (about 500), the cost of an item (about \$10), the time taken to get somewhere (about half an hour). Show how rounding can be used in calculations, for example,  $17 + 9$ . Since 9 is nearly 10,  $17 + 9$  equals to  $17 + 10 = 27$  and then take one less.

# Fractions

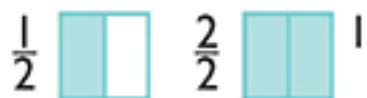
## Read it!

**Key words:** fraction, equal part, half, third, quarter, whole

A **fraction** is any part of a whole, a group or a number.

### A fraction of a whole:

A square is split into two equal parts. Each part is **half** of the square.



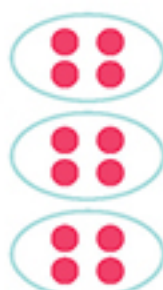
A half is a **fraction**.

We write one half as  $\frac{1}{2}$ . Two halves is  $\frac{2}{2}$  or 1 **whole**.

### A fraction of a group:

3 students share 12 cherries equally among them.

Each student has one third ( $\frac{1}{3}$ ) of the cherries.



One third of 12 is 4.

This can be written as  $\frac{1}{3}$  of 12 = 4

This pizza is divided into 2 equal parts. Each part is half of the pizza.



This pizza is divided into 4 equal parts. Each part is one quarter of the pizza.



## Language focus

### Singular

half  
quarter  
third

### Plural

halves  
quarters  
thirds

If you eat **two quarters** ( $\frac{2}{4}$ ) of the pizza, this is the same as a **half** ( $\frac{1}{2}$ ).  
Look at the pizza picture.



## Think about it!

Put a tick (✓) next to the diagrams with one quarter shaded in.

