Oxford International Primary

2

Maths

Practice Book

Second edition

OXFORD

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Practice Book

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Contents

1 Numbers and counting

What students will learn

In this unit students will develop an understanding that the decimal number system is based on tens and that in a number such as 57, the 5 stands for 50 or 5 tens, and the 7 stands for 7 ones. They will use their knowledge of place value to compare and order numbers.

Students will count in steps of 2, 3, 4, 5 and 10, and explore the link between counting in steps and multiplication.

They will also begin to round numbers to the nearest multiple of 10. (The multiples of 10 to 100 are: 10, 20, 30, 40, 50, 60, 70, 80, 90 and 100.)

Learning objectives:

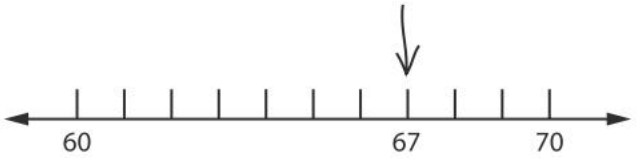
- count in steps of 2, 3, 5 and 10
- estimate numbers
- compare and order numbers using <, > and = signs
- read and write numbers to at least 100 in numerals and in words.

Key words

one, two, … ninety-nine	number pattern	more than
ones, fours, fives, tens	horizontal	fewer than
count on	vertical	larger, smaller
count back	diagonal	between
multiple	estimate	round up/down
even, odd	predict	multiples of 2, 3, 4, 5 and 10
partition	greater than (>)	nearest multiple of 10
place value	less than (<)	ordinal numbers

Ways to help

- Count with students as often as possible, starting at different numbers and counting on and back up to 100. Practise counting in ones, twos, threes, fours, fives and tens.
- Look for numbers in the environment and say the numbers aloud for students to hear.
- Display a 100-square on the wall. Use it to count on and back with students. This allows students to see the patterns when counting in steps of different numbers.
- Number lines are very helpful when rounding. Use an empty number line with 10 intervals marked. Ask students to label the ends of the number line with the multiples of 10 that their number is between, and then to mark their number in the correct position on the line. This will help them to see which multiple of 10 their number is closest to.



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	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	56	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

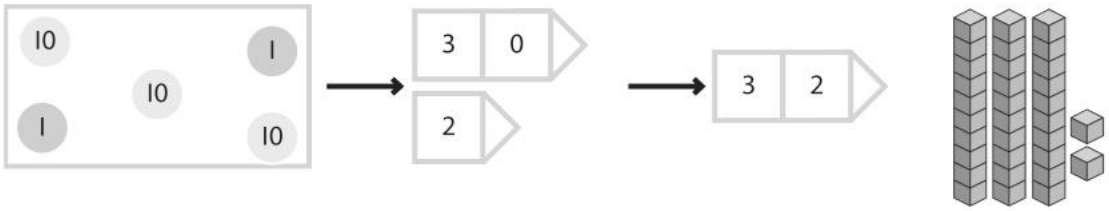
2 Exploring numbers

What students will learn

This unit will help students read and write numbers up to 100 using number lines and 100-squares. They will develop their knowledge of place value by partitioning numbers and exploring patterns. They will use this knowledge to estimate and to solve problems.

Learning objectives:

- read and write numbers to at least 100 in numerals and in words
- know the place value of each digit in a 2-digit number (tens, ones)
- use place value and number facts to solve problems.



Key words

ones	2-digit number	1 more	10 more
tens	partition	1 less	10 less

Ways to help

- Check that students understand that the tens number comes first when writing 2-digit numbers.
- Remind students that we read numbers from left to right in Hindu-Arabic (Western) script and that the number on the left has the highest value. For example: *26 is made from a 20 and a 6. 14 is made from a 10 and a 4.*

3 Number bonds and fact families

What students will learn

There is a mathematical rule called 'commutativity'. This means that it does not matter in which order we add up numbers; we always get the same answer. For example:

7 + 3 = 10 is the same as 3 + 7 = 10.

In this unit, students will continue to explore number facts and number patterns, which are useful for carrying out mental calculations. They will learn number bonds and fact families for 10, 20 and 100.

A 'fact family' is a group of facts that we can work out from one single fact. For example, if we know that 1 + 19 = 20, we also know that:

19 + 1 = 20 20 – 1 = 19 20 – 19 = 1

Learning objectives:

- recall addition and subtraction facts to 20
- use related facts up to 100
- show that addition can be done in any order and subtraction cannot
- use an inverse calculation to check answers and solve missing number problems.

Key words

addition	number bonds	fact families
subtraction	addition fact	multiple
total	subtraction fact	multiples of 10

Ways to help

- As students are working on the activities in this unit, ask them to explain how they are working things out. This will encourage them to think about the strategies they are choosing, and will deepen their understanding.
- If students tell you that they know that 80 + 20 = 100, ask them what else they can work out from this fact. For example: *20 + 80 = 100, 100 – 20 = 80 and 100 – 80 = 20.*

4 Addition and subtraction

What students will learn

This unit develops students' understanding of addition and subtraction. They will learn how to use 'jumps' on a number line to help them carry out calculations. They will also learn that their knowledge of number facts, such as number bonds, can help with mental calculations. They will use their knowledge of place value and partitioning to help them add 2-digit numbers.

Learning objectives:

- add and subtract 1- and 2-digit numbers
- understand that you can add in any order
- use subtraction to check addition calculations and addition to check subtraction calculations
- solve addition and subtraction word problems.

Key words

addition	subtract (–)	number bonds	difference
add (+)	calculation	count on	number line
subtraction	total	count back	partition

Ways to help

- Ask students to explain how they are calculating something. Explaining their strategies for calculating to another person will help them to remember how to carry out a similar calculation in the future.
- Many students find subtraction more difficult than addition. Provide lots of practice with counting back on number lines to help students visualise the concept of 'taking away'.

5 Multiplication and division

What students will learn

This unit builds on the ideas of multiplication and division that were introduced in Stage 1. Students will develop their understanding of odd and even numbers. They will make the connection between even numbers and multiples of 2 (doubles). They will also explore multiples of 3, 4, 5 and 10.

They will learn that multiplication is repeated addition. For example:

$3 + 3 + 3 + 3 + 3 = 15$ is the same as $5 \times 3 = 15$.

They will learn about division as grouping; we can divide 15 objects into '5 groups of 3'. They will develop their understanding of the links between multiplication and division, building on the idea of fact families. An example of a fact family for multiplication and division is:

$3 \times 5 = 15$ $5 \times 3 = 15$ $15 \div 5 = 3$ $15 \div 3 = 5$

Learning objectives:

- know the 2, 5 and 10 times tables
- recognise odd and even numbers
- understand that you can multiply in any order
- solve problems involving multiplication and division.

Key words

even	array	multiplication fact	division
odd	row	multiple	division fact
double	column	multiples of 2, 3, 4, 5 and 10	equal groups
half	multiply (×)		groups of
partition	multiplication	divide (÷)	remainder

Ways to help

- Talk about odd and even numbers. Build towers with building blocks and show how an even number of blocks allows us to build two towers that are the same height. This also shows that even numbers can be split into two equal groups.
- Help students to understand division by giving them practical sharing activities. For example, ask them to share 15 grapes between 5 people. They will then understand that $15 \div 5 = 3$. This also helps them to remember that when we divide, we have to split objects into equal groups.
- Use simple, practical problems to introduce students to the concept of dividing with remainders. For example, ask how students would divide 14 grapes equally between 3 people. Use the phrase '2 left over' to describe the remainder.

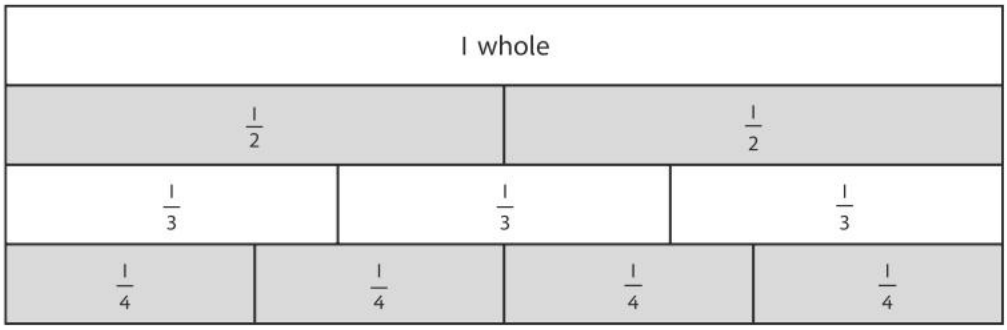
6 Fractions

What students will learn

In Stage 1 students learned about halves ($\frac{1}{2}$) and quarters ($\frac{1}{4}$). This unit builds on their previous learning and introduces more fractions such as thirds ($\frac{1}{3}$) and eighths ($\frac{1}{8}$). The unit reinforces students' understanding that when we divide shapes or amounts into fractions, all the parts must be of equal size. Students will discover the link between fractions and division: we find one half of an amount by dividing by 2 and one quarter of an amount by dividing by 4. They will begin to explore equivalent fractions.

Learning objectives:

- find $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or number
- write simple fractions
- know the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.



Key words

fraction
circle
rectangle
triangle
one half ($\frac{1}{2}$)
one quarter ($\frac{1}{4}$)
three quarters ($\frac{3}{4}$)
one third ($\frac{1}{3}$)
one eighth ($\frac{1}{8}$)
halves
quarters
thirds
eighths
equivalent
equal parts
divide
division

Ways to help

- Provide students with as much practical experience as possible. For example, practise cutting shapes into halves and quarters and always ask students to check that the parts are the same size. You could do the same when slicing vegetables, fruits and other foods such as pizzas.
- Divide a quantity of objects (such as toy cars, marbles, grapes, pebbles) into halves and quarters by sharing them into equal groups.

7 Length, mass and capacity

What students will learn

In Stage 1 students learned how to compare and measure lengths, masses and capacities in different ways. For example, they compared masses by seeing which of two objects felt heavier, and measured lengths using hand spans. They also started to use measuring equipment to find exact measurements in centimetres, grams and millilitres.

In this unit students will develop their understanding of standard units of measurement, and their skills in measuring accurately. They will learn that we use metres and centimetres.

Learning objectives:

- estimate and measure length, mass and capacity
- compare and order length, mass and capacity.

Key words

estimate	tape measure	measuring jug
measure	long, longer, longest	mass (weight)
length	short, shorter, shortest	gram
centimetre	tall, taller, tallest	kilogram
metre	capacity	weighing scales
ruler	millilitre	light, lighter, lightest
metre stick	litre	heavy, heavier, heaviest

Ways to help

- Students can help with measuring as part of everyday activities. For example, crafts or household tasks such as decorating or home repairs might involve measuring lengths. Cooking will involve weighing ingredients and measuring amounts of liquids. Activities such as these will help students learn to read scales, and gain an understanding of common measures.
- It is helpful to look at food and drink containers and packaging with students. For example, look at the capacities of fruit juice containers and the masses marked on grocery products and packets of fruit and vegetables.

8 Money

What students will learn

In this unit students will explore different combinations of notes and coins that they can use to pay for items. They will work out different combinations of items that they can buy for given amounts of money. They will also learn how to calculate the change they will receive when paying for an item with $1.

Learning objectives:

- recognise different notes and coins
- combine coins to make a given value
- solve problems involving money.

Key words

coins	cost	change	dollar
notes	cheapest	currency	cent
how much?	most expensive		

Ways to help

- The best way to help students learn about money is to let them help you with shopping, either online or in a shop. Talk about how much things cost and show them which notes and coins you can use to pay for things.
- Help students to set up a little shop and use real notes and coins to purchase items from their shop.
- If you travel, bring back notes and coins from other countries and talk about the different currencies.

9 Time

What students will learn

Students were introduced to telling the time and the days of the week in Stage 1. In this unit they will begin to measure time in minutes and seconds and to get a sense of how long different activities take. They will also develop their understanding of telling the time by learning to recognise times in 5-minute intervals. Days of the week, months of the year and calendar dates will be reinforced. Students will also begin to convert between seconds, minutes, hours and days.

Learning objectives:

- compare different times
- tell the time to the nearest five minutes
- recall the number of minutes in an hour and the number of hours in a day.

Key words

morning (a.m.)	quarter past	second	calendar
noon	quarter to	minute	days of the week
afternoon (p.m.)	analogue clock	hour	months of the year
evening	digital clock	day	
night	how long?	week	
o'clock	how many?	month	
half past	what time is it?	year	

Ways to help

- Having clocks around the home and classroom is invaluable. Try to have both analogue and digital clocks on show. Focus on 'o'clock' and 'half past' times at first. Try to notice when the time is either an o'clock' time or half past the hour and ask students to tell you what time it is. When students are confident with these times, start to talk about time in intervals of five minutes. For example: *It's 5 minutes to 2.*

analogue clock

digital clock

- Write the days of the week on the left-hand side of a large piece of paper. Display this on the wall. Talk about what you do each day. Ask students to write or draw pictures to keep a record.
- Keep a monthly calendar on the wall so that students have a constant reminder of the days of the week and dates in the month.

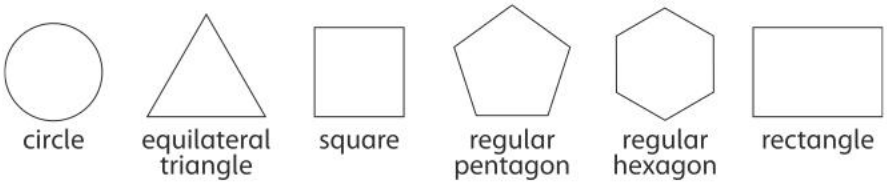
10 Geometry – properties of shapes

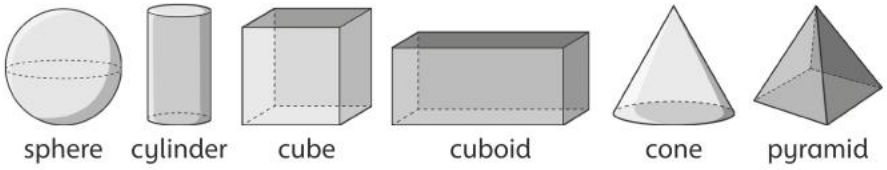
What students will learn

This unit introduces students to a wider range of shapes than they met in Stage 1. They will learn to recognise the properties of shapes and to use these properties to describe and sort shapes. They will remember that 3-dimensional (3D) shapes have thickness and that 2-dimensional (2D) shapes have no thickness. Students will continue to develop their understanding of line symmetry, which was introduced in Stage 1.

Learning objectives:

- describe the properties of 2D and 3D shapes
- identify 2D shapes on the surface of 3D shapes
- compare and sort common 2D and 3D shapes.



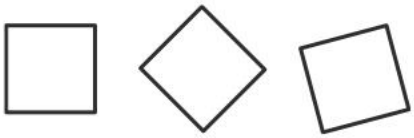


Key words

2-dimensional	names of 3D shapes	curved	section
2D shape	vertex (corner)	straight	sort
3-dimensional	side	flat	line of symmetry
3D shape	edge	property	symmetrical
names of 2D shapes	face	criteria	

Ways to help

- Give students practical experience of handling shapes and seeing shapes in different orientations. For example, all these shapes are squares because they all have four equal sides and four right angles.



- Encourage students to notice and talk about shapes in the environment.
- Take every opportunity you can to name shapes and talk about their properties.