Oxford International Primary

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Maths

Practice Book

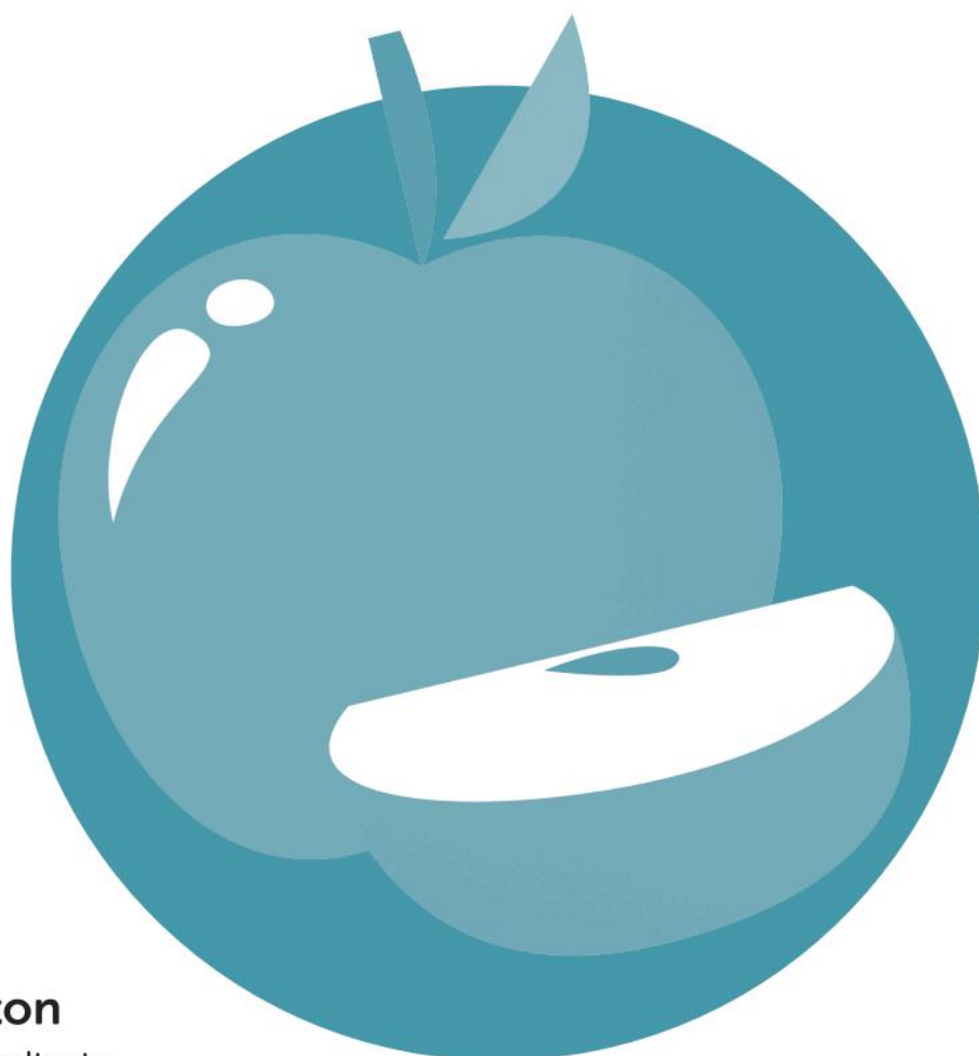Second edition

OXFORD

Oxford International Primary

Maths
Practice Book

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Tony Cotton

Language consultants:
John McMahon
Liz McMahon

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Contents

Support for teachers and parents

These pages provide teachers and parents with a summary of the key learning in each unit, the vocabulary students will need to become familiar with, and some practical ways to reinforce their learning in the classroom and at home.

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Unit 3 Exploring numbers

Unit 4 Addition

Unit 5 Subtraction and difference

Unit 6 Multiplication and division

1 Numbers and counting

What students will learn

This unit introduces numbers, the number system and counting. The focus is on numbers 0–20. This unit also teaches students how to make estimates. Estimating is an important skill to help with mental calculation and is important in our everyday lives.

Learning objectives:
- count, read and write numbers to 100
- count in multiples of twos, fives and tens
- know and make numbers using objects and pictures
- use words such as equal to, more than, less than (fewer), most, least
- read and write numbers from 1 to 20 in words.

Key words

coin	count on	10 more	smallest
numbers	altogether	10 less	largest
number names	how many?	ones	multiple
zero–twenty	most	twos	steps
number	fewest	fives	predict
count	1 more	tens	estimate
more than	1 less	cubes	guess
less than	2 more	rods	nearly
fewer than	2 less	order	how many more?
count up to	5 more	column	how many less?
count back	5 less	row	

Ways to help

- Ask students to count lots of different objects. Always start from 1 so that students learn to say the number names in order, e.g. *How many cars on the street? How many cups on the table? How many items in the shopping basket?*
- Emphasise the last number you count so students learn that the last number tells you how many objects there are, e.g. *There are one, two, **three** cups.* Touch objects as you count them so students understand you only count each object once.
- Once students can count on it is helpful to count back too. This helps in understanding the pattern and is useful later when beginning to subtract.
- When students count groups of objects, ask them to think about which group has the most and the fewest objects. Encourage them to compare, e.g. *This group has more, this group has fewer.*
- Say counting rhymes together.
- If students find it hard to count pictures, give them a matching number of objects to count instead.
- Keep handy images of number lines and 100-squares so that students have a range of mental images of the number system. This is particularly helpful in mental calculation as they can visualise these images in their heads.

2 Number bonds

What students will learn

This unit continues to teach students about the number system. Students will learn how to use their knowledge of the number system to solve problems. This unit introduces students to addition and subtraction by combining and separating sets of objects into number bonds.

Learning objectives:

*   read and write number sentences using addition (+), subtraction (−) and equals (=) signs
*   use number bonds to 20 and related subtraction facts.

Key words

add (+)	total	altogether	count on
addition	how many?	number	count back
subtract (−)	how many more?	missing number	less
subtraction	how many less?	number pairs	more
equals (=)	partition	number bonds	

Ways to help

*   Continue to count aloud with students. This helps them understand that number names are always said in the same order and that the number of objects in a group is given by the last number that we say when counting.
*   Use practical materials when counting, such as counters, cubes or buttons. Use the objects to add two groups together and to split the whole set into two groups. This is the best way for students to begin to see what we mean by addition (how many altogether) and subtraction (how many left).

3 Exploring numbers

What students will learn

This unit introduces ordering numbers and finding numbers that are more than a given number, less than a given number and between two given numbers. Place value is explored through partitioning 2-digit numbers into tens and ones, and discussing the value of given digits.

This unit also includes some work on ordinal numbers, and explores the patterns of even and odd numbers.

Learning objectives:

* know and make numbers using objects and pictures
* read and write numbers from I to 20 in words
* say I more and I less than any number
* count to I00 and beyond.

Key words

more than	ones	second	odd
less	twos	third	even
fewer than	fives	fourth	predict
how many?	tens	fifth	column
between	place-value table	after	row
highest	2-digit number	before	
lowest	ordinal numbers	pattern	
partition	first	repeating pattern	

Ways to help

* It is important to use practical equipment to help students count and compare numbers at this stage, including objects that can be grouped, such as straws or buttons. It is particularly important to give students opportunities to group objects in tens.
* Continue to count objects aloud, asking students to touch each object as it is counted.
* Create a number line from 0–20 and put it on a wall. Encourage students to find numbers on the line and then to find larger and smaller numbers.
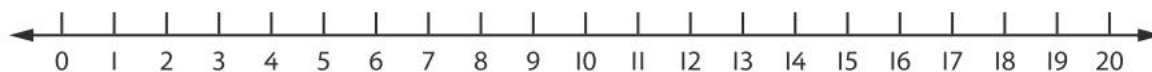
* Encourage students to look for number patterns in the environment, such as odd and even house numbers on either side of the road.

4 Addition

What students will learn

This unit introduces students to the idea that addition is what happens when the objects in two or more smaller groups come together to make one big group, and that changing the order of addition does not change the total.

Students are taught various strategies for solving addition problems, including the use of number lines and known facts such as number bonds. Students apply their learning to solve word problems involving addition.
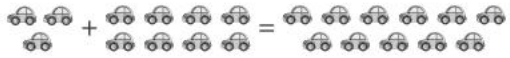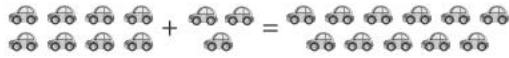
Learning objectives:

- read and write number sentences using addition (+), subtraction (−) and equals (=) signs
- use number bonds to 20 and related subtraction facts
- add 1-digit and 2-digit numbers
- solve addition problems.

Key words

addition	more	number sentence	equals (=)
add (+)	pairs	sum	jump
altogether	total	plus	bridging 10

Ways to help

- Use practical materials to help students see the commutative property of addition. Commutative means that it does not matter which way round we add two numbers. For example, students might be given a word problem such as: *I have 3 toy cars and my friend has 8 toy cars. How many do we have altogether?* This can be solved in two ways:

- Students can use 0–20 number lines when solving addition problems. For example, to solve $3 + 8$, or $8 + 3$:
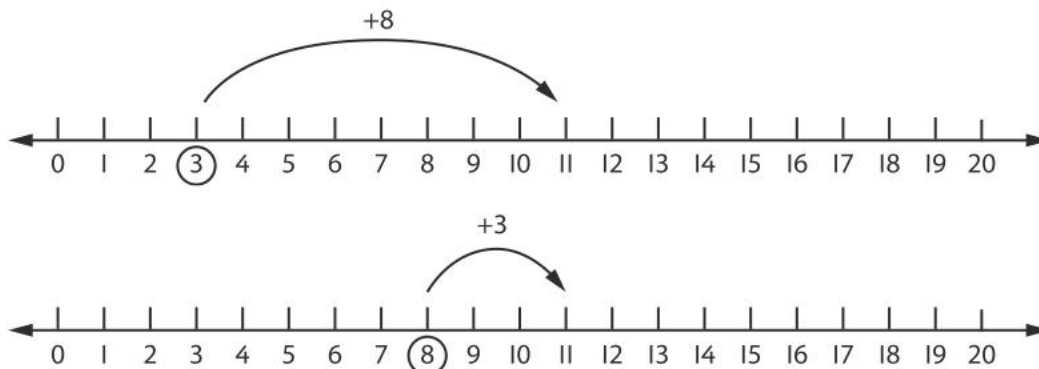
5 Subtraction and difference

What students will learn

This unit introduces students to the idea of subtraction and difference.

Students will be taught about partitioning to help them make the links between addition and subtraction. For example: *I can partition 7 into 4 and 3, so 14 – 7 is the same as 14 – 4 – 3 = 10 – 3.* This helps students see that 14 – 7 = 7.

They will also learn that they can check the answer to a subtraction by adding. For example: *I know that 8 – 5 = 3 is correct because 3 + 5 = 8.*

Students are taught various strategies for solving subtraction and difference problems, including the use of number lines and known facts such as number bonds. Students apply their learning to solve word problems involving subtraction.

Learning objectives:

*   read and write number sentences using addition (+), subtraction (–) and equals (=) signs
*   subtract 1-digit and 2-digit numbers
*   solve subtraction problems.

Key words

|			
difference	count back	take away	how many less?
minus	count on	how many left?	number bonds
subtract (–)	jump on	how many more?	
subtraction	jump back		

Ways to help

*   Help students try to spot patterns and notice the relationship between addition and subtraction. For example:

    8 + 5 = 13

    13 – 8 = 5

    13 – 5 = 8
*   Use practical materials to show students these patterns.

6 Multiplication and division

What students will learn

This unit introduces students to multiplication and division. Division is introduced as grouping and sharing, and multiplication is illustrated using repeated addition and arrays. An array has an equal number of rows and columns. For example, this array shows $2 \times 3 = 6$ and $3 \times 2 = 6$:
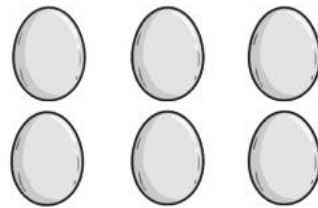
Students apply their learning to solve word problems involving multiplication.

Learning objectives:

- solve multiplication and division problems
- use pictures and arrays to solve multiplication and division calculations.

Key words

share	column	lots of	multiples of 2
equally	even	multiply ($\times$)	multiples of 4
groups	odd	multiplication	multiples of 5
equal groups	halve	divide ($\div$)	repeated addition
array	half	division	
row	groups of	multiple	

Ways to help

- While playing games, encourage students to see multiplication number patterns on game equipment such as dominoes. For example, 6 dots could be 3 groups of 2 or 2 groups of 3.
- Continue to use the 100-square (see the example on page 27) to help students to see patterns when counting.
- Encourage students to look for arrays in everyday life. For example, this egg box shows $6 \times 2 = 12$ and $2 \times 6 = 12$. It also shows $12 \div 2 = 6$ and $12 \div 6 = 2$.
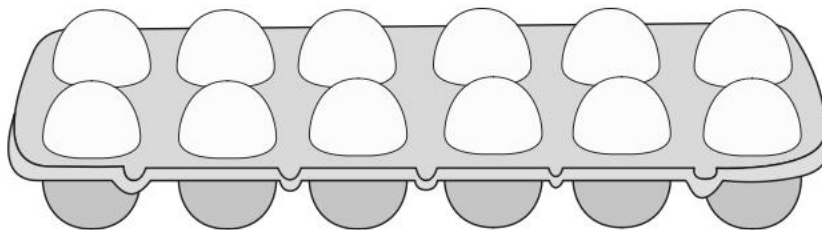
7 Fractions

What students will learn

This unit introduces students to fractions. They will learn about halves ($\frac{1}{2}$) and quarters ($\frac{1}{4}$). The most important thing for students to understand is that when we divide shapes or amounts into fractions, all the parts must be of equal size.

Learning objectives:

- find a half of an object, shape or quantity
- find a quarter of an object, shape or quantity.

Key words

double	quarter ($\frac{1}{4}$)	equal parts
halve	three quarters ($\frac{3}{4}$)	equal pieces
half ($\frac{1}{2}$)	one out of four	equal groups
halves	fraction	

Ways to help

- Encourage students to look for I-digit numbers in the local environment, and ask them to double or halve the numbers.
- Practical experience is always helpful. Give students opportunities to practise cutting shapes into halves and quarters and ask them to check that the parts are the same size. Similarly, ask students to divide a quantity of objects (such as pieces of fruit, pasta or counters) into halves and quarters by sharing them into equal groups.
- At home, parents and carers can use the vocabulary of fractions when they are sharing things between family members, e.g. *You and your sister can have half each.*

8 Length, mass and capacity

What students will learn

This unit introduces students to early ideas of measurement. They will learn about lengths and masses of objects by comparing them. They will estimate the capacities of containers (how much they hold) and then check their estimates and comparisons using small objects such as dried chickpeas. They will also be introduced to comparative language, such as longer, shorter, heavier, lighter, and so on. They will also start to use measuring equipment.

Learning objectives:

•   solve length, height, mass and capacity problems

•   measure and begin to record length, height, mass and capacity.

Key words

length	mass	holds the most
width	large, larger, largest	holds the least
long, longer, longest	small, smaller, smallest	how many?
short, shorter, shortest	heavy, heavier, heaviest	compare
wide, wider, widest	light, lighter, lightest	measure
tall, taller, tallest	capacity	measuring jug

Ways to help

•   Students will spend a lot of time in class thinking about the conservation of measures. That is the idea that an object keeps the same size and shape no matter how you position it. Give students plenty of practice at comparing the lengths of objects, making sure they line up the objects so that the ends are together.
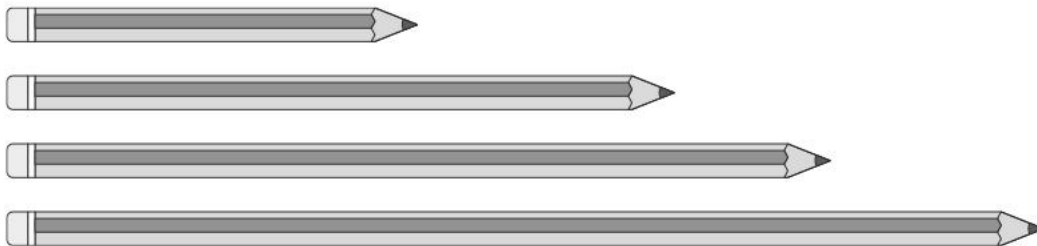
•   Carry out lots of practical measuring activities, e.g. measuring and comparing lengths and asking which is longer and which is shorter.

•   Ask students to use scales to weigh things and decide which is heavier and which is lighter.

•   Ask students to measure out volumes of liquids using measuring jugs.

9 Money

What students will learn

This unit introduces students to the values of notes and coins. They will learn about the currency of their own country as well as US dollars and cents and UK pounds and pence. They will explore how to make given amounts using different combinations of coins.

Learning objective:

• recognise different coins and notes.

Key words

coin	cents	price	greater than
note	pounds	total	stamps
currency	pence	how much?	postage
dollars	cost	less than	value

Ways to help

• Show students the coins that are used in your currency. Help students to understand the value of the different coins.
• Talk about how much things cost when going shopping. Look at price labels and till receipts.
• Play games to find different ways to make small amounts of money with different coins.

10 Time

What students will learn

Telling the time is a vital skill for young students to learn. It is complicated, as time is not organised according to the decimal system. Instead of counting in tens, there are 60 seconds in a minute, 60 minutes in an hour and 24 hours in a day.

Students start telling the time by recognising and naming different parts of the day, such as morning, afternoon and night. In this unit, they learn the names of the days of the week, and begin to measure time in minutes and seconds.

Learning objectives:

- tell the time to the hour and half past the hour
- use the words before, after, next, first, today, yesterday, tomorrow, morning, afternoon and evening
- know the days of the week and the months of the year
- measure time (hours, minutes, seconds)
- solve time problems.

Key words

days of the week	tomorrow	hour hand	next
day	o'clock	minute hand	morning
week	hours	what time is it?	afternoon
month	minutes	how long?	evening
calendar	seconds	before	night
yesterday	short hand	after	
today	long hand	first	

Ways to help

- It is useful to have both digital and analogue clocks in the classroom and at home. Look out for when the time is either an o'clock time or half past the hour and ask students to tell you what time it is.
- Use the vocabulary of time when talking to students about plans for the day, or daily routines, e.g. *What did we do yesterday? What would you like to do tomorrow?*