Making Everything Easier!™

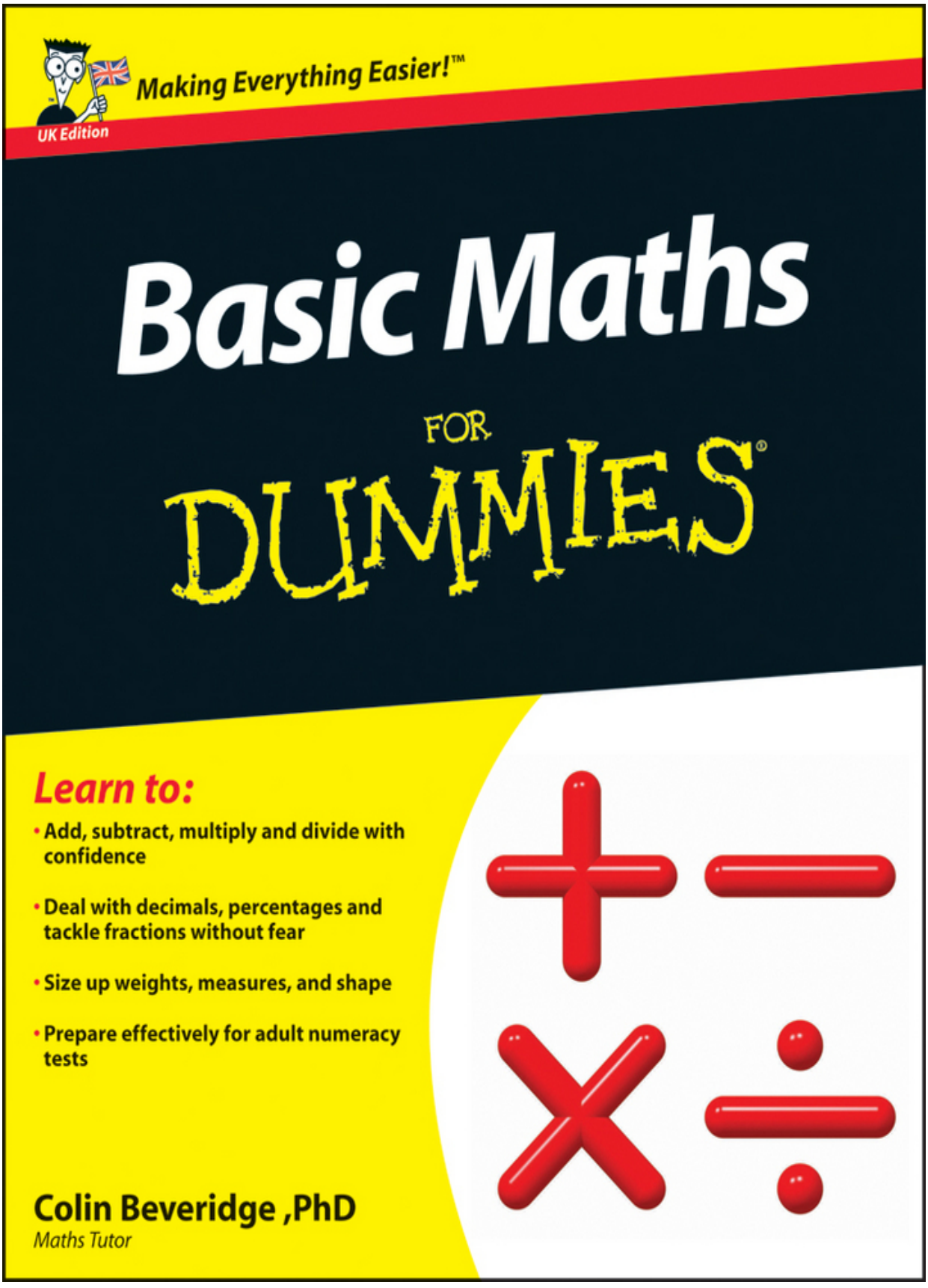
UK Edition

Basic Maths FOR DUMMIES®

Learn to:

- Add, subtract, multiply and divide with confidence
- Deal with decimals, percentages and tackle fractions without fear
- Size up weights, measures, and shape
- Prepare effectively for adult numeracy tests

Colin Beveridge ,PhD
Maths Tutor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Basic Maths For Dummies®

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Cheat Sheet

Basic Maths For Dummies®

by Colin Beveridge

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Published by
John Wiley & Sons, Ltd
The Atrium
Southern Gate
Chichester
West Sussex
PO19 8SQ
England

E-mail (for orders and customer service enquires): cs-books@wiley.co.uk

Visit our Home Page on www.wiley.com

Published by John Wiley & Sons, Ltd, Chichester, West Sussex

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British Library Cataloguing in Publication Data: A catalogue record for this book is available from the British Library

ISBN: 978-1-119-97452-9 (paperback), 978-1-119-97561-8 (ebook), 978-1-119-97562-5 (ebook), 978-1-119-97563-2 (ebook)

Printed and bound in Great Britain by TJ International, Padstow, Cornwall

10 9 8 7 6 5 4 3 2 1

About the Author

Colin Beveridge is a maths confidence coach for Flying Colours Maths and co-author of the Little Algebra Book.

He holds a PhD in Mathematics from the University of St Andrews and worked for several years on NASA's Living With A Star project at Montana State University, where he came up with an equation which is named after him. It's used to help save the world from being destroyed by solar flares. So far so good.

He became tired of the glamour of academia and returned to the UK to concentrate on helping students come to terms with maths and show that not all mathematicians are boring nerds; some are exciting, relatively well-adjusted nerds.

Colin lives in Poole, Dorset with an espresso pot, several guitars and nothing to prove. Feel free to visit his website at www.flyingcoloursmaths.co.uk or follow him on Twitter at www.twitter.com/icecolbeveridge.

Author's Acknowledgments

I'm very grateful to the team at Dummies Towers for their work and guidance in making this book awesome – particularly my editors Rachael Chilvers and Mike Baker.

The writing was largely fuelled by the Little Red Roaster coffee shop in Parkstone, and inspired by the students who helped me develop the ideas and make them simple enough to understand – extra-special thanks to Tain Duncan, Ethan Oak and Dale Bannister. LaVonne Ellis, Lisa Valuyskaya and Ryah Albatros

from Customer Love all went above and beyond in getting me to just write the blasted thing.

It wouldn't have been written at all without the work my brother Stuart and his colleagues at The Chase did on the Little Algebra Book, or the unfaltering support of my parents – Ken Beveridge and Linda Hendren – and the tireless encouragement of Melissa Day.

Dedication

For the teachers who taught me most of what I know: Brian Rodrigues, DJ Rowley, Dana Longcope and Naomi Dunford.

And for the students who taught me most of the rest.

Publisher's Acknowledgements

We're proud of this book; please send us your comments through our Dummies online registration form located at www.dummies.com/register/.

Some of the people who helped bring this book to market include the following:

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Project Coordinator: Kristie Rees

Layout and Graphics: Corrie Socolovitch, Christin Swinford

Proofreader: Lauren Mandelbaum

Indexer: Becky Hornyak

Introduction

Hi! I'm Colin, and I want to change the world.

I live in a world where, when I say 'I'm a maths tutor,' people say to me 'Oh, maths . . . I was never any good at that,' or 'I haven't used maths since I left school.'

I live in a world where I have to bite my tongue rather than say 'I don't mind that you think maths is hard, but I am saddened that you're proud of this,' or 'Are you sure about that? I bet you used maths six times before breakfast this morning.'

I want to live in a world where everyone is okay at maths. Not a world full of Einsteins, not a world full of geeks – just a world where having a solid level of maths is as natural to everyone as having a solid level of reading and talking.

This book is part of my vision – and I'm delighted that you've picked it up. You've taken the first step to being a bigger part of my ideal world, and I want to do everything I can to help you become as good at maths as you want to be.

I want to show you that maths makes sense, most of the time, and that you use maths countless times a day, often when you don't even realise it. I want to show you that after you break problems down into smaller steps, those problems are so much more doable. I want to help you stop feeling stupid or afraid or troubled by maths. I know you aren't stupid: you just haven't got the hang of maths yet.

Most of all, I want to hear how you get on. The best way to catch me is on twitter (`@icecolbeveridge`) – I can't promise I'll get back to you straight away, but I promise I'll read and reply if I possibly can.

About This Book

In this book, I try to help you understand not only *how* to do the maths you need, but *why* you do the maths in a certain way. I show you maths isn't some mystical language of squiggles but instead is a concise and efficient way to communicate. One of the nice things about maths is that it changes very little from country to country. I studied maths in France for a year and was surprised that most of the words, even in the ridiculously advanced maths they thought I could do, were either basic French vocab or very similar to the English words. The sums were exactly the same. (I still couldn't do them, but that's a different story.)

Now, I'm pretty good at maths. I've been a full-time maths tutor since 2008. Before that I worked on a NASA project in the USA. I have an equation named after me. I know my stuff.

But – and this is a big 'but' – I know that being a good mathematician isn't the same as being a good maths teacher. I'm lucky to have worked with enough people at the stage you are now – smart and interested, but needing help to understand – that I can break down maths into smaller, simpler parts that I hope you'll understand.

Among other things, I cover the following in this book:

- Keeping calm instead of stressing about maths.
- Solving regular arithmetic problems – adding and taking away, multiplying and dividing.
- Rounding off and estimating your answers.
- Dealing with decimals, fractions, percentages and ratios.

- Messing about with measures of time, money, weight and temperature.
- Understanding shapes – how you measure them and how you move them around.
- Grappling with graphs – both reading and drawing.
- Summing up statistics, including averages and probabilities.

How could that not be fun?

This book is based on the UK Adult Numeracy Core Curriculum, from Entry Level 3 through to Level 2. Whether or not a Level 2 numeracy qualification is equivalent to an A–C pass at GCSE is a murky area I don't want to muddy further, but I reckon they're roughly the same level in difficulty, although the numeracy curriculum covers slightly fewer topics.

So, that means this book may help you do pretty well at GCSE level but won't cover all of the topics involved – particularly algebra, which this book barely touches. If you read this book cover to cover and understand everything, you should ace any UK Adult Numeracy test thrown at you. Although I've based this book on the core curriculum, I sometimes dip into topics in a little more detail than needed. I also cover a few areas from a slightly earlier level in the curriculum if I reckon you may find the particular subject hard.

Whether you're studying for a numeracy qualification or a GCSE, or just want to brush up on your basic maths skills, this book has what you need. Best of all, the book follows the *For Dummies* format. Divided into easy-to-follow parts, the book serves as both your reference and your troubleshooting guide.