DISCOVERING MATHEMATICS

Unlocks understanding, builds confidence

The Key Stage 3 course that sets up success at GCSE

Discover more:
www.oxfordsecondary.co.uk/discoveringmathematics
Set up success at GCSE

Discovering Mathematics is the Key Stage 3 series that provides the perfect progression from primary school to success at GCSE.

- Give your Year 7 learners the perfect start with our transition package: baseline assessments to help with setting plus a detailed ‘Flashback’ at the start of every chapter. Read more on pages 7 & 10.
- Guide your students to deep and lasting understanding of each new topic with the unrivalled concept development in the series. Read more on page 8.
- Watch your students progress in micro-steps with our intelligently crafted practice that progresses from fluency to reasoning to the best problem-solving support available. Read more on p.9
- Launch your students into Key Stage 4 brimful of confidence with our assessments, along with our 9–1 GCSE grading and tracking. Read more on pages 10 & 14.

What do teachers and students think of this series?

“Students are engaged with the lessons a lot more and feel a sense of achievement.”
Cleeve School, Cheltenham

“This is beginning to click now”
“I learn best in this sort of way”
“I feel like I’m getting good at algebra!”
Student feedback on Chapter 4 Simple Equations, Old Buckenham High School, Norfolk

“The student book is excellent with really good explanations and teaching activities. These not only help students but are really helpful for less experienced teachers.”
The Barclay School, Stevenage

“The exercises are a triumph. The question selection, the careful variation... has, in my opinion, been lacking in almost all textbooks in this country.”
The Blue Coat School, Oldham

“Kerboodle is an excellent resource to use in the classroom – it was great and easy to use.”
John Masfield High School, Herefordshire

“[Students’] language was drastically improved from a mathematical stance.”
Birkdale High School, Southport

TRIALLED in 30 schools across England in 2018
Now in use ACROSS THE UK
What is the DISCOVERING MATHEMATICS journey?

The best problem solving support available

Differentiated exercises which progress in micro-steps

Unrivalled concept development

Comprehensive assessment package

Perfect progression to GCSE

Transition support from Primary to Key Stage 3

Our transition package gives Year 7 learners the perfect start: baseline assessments to help with setting, plus a detailed ‘Flashback’ at the start of each chapter to recap key skills.

Differentiated exercises that progress in micro-steps

Our intelligently crafted questions are presented in three levels (1-3) to support the development of fluency, reasoning and problem-solving. Progression is offered in micro-steps to build students’ confidence every step of the way.

The best problem-solving support available

Problem-solving is at the heart of this series, with dedicated sections in the Student Books to build problem-solving skills and badged questions throughout for practice.

Unrivalled concept development

Student Books build deep understanding of new topics via clear explanations and perfectly crafted worked examples.

Class Activities are included in the books, to help you guide your students towards uncovering the maths for themselves.

Precise use of mathematical language

When students use mathematical language with precision, their accuracy improves. We support this with careful definitions, precise terminology, and full-sentence worked examples.

Comprehensive assessment package with GCSE grades and tracking

On Kerboodle we offer an end-to-end assessment scheme:

- Baseline tests for Year 7
- End-of-chapter tests for every topic
- End-of-phase (year) tests: calculator and non-calculator papers.

Perfect progression to GCSE

Discovering Mathematics sets up success at Key Stage 4:

- Repeated practice for AO1-3 skills
- Careful leveling with 9–1 GCSE grades and sub-grades (visible to teachers only) – the only KS3 series in the UK that offers this
- Easy-to-use tracking on our widely praised Student Assessment Tool
- 5 Year Schemes of Work for seamless progression to GCSE.

Order your Evaluation Pack today!

Discovering Mathematics Evaluation Pack
978 019 842671 4
Evaluate free for 30 days. See back page for details of how to request your copy.

Pack contains:
- Student Book 1B (Middle Tier, Year 7)
- Workbook 1B (Middle Tier, Year 7)
- Course Guide
- Sample chapter from Student Book 2B (Middle Tier, Year 8)
### Key Stage 2/3 transition support

**Discovering Mathematics** supports the transition of Year 7 students from Key Stage 2 to 3 in several crucial ways:

- **Baseline tests** carefully assess students’ knowledge across all the major strands (Number, Algebra etc), to help build a profile of their strengths and to help with setting.

- **Full page ‘Flashbacks’** at the start of every chapter help students re-connect with prior learning. See the example on Fractions below.

- **Our Key Stage 2 mapping document** shows, for each topic in this series, when and where, and in what depth, it was covered in Key Stage 2. See [www.oxfordsecondary.co.uk/discoveringmathematics](http://www.oxfordsecondary.co.uk/discoveringmathematics)

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#### This chart outlines the components available within Discovering Mathematics

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| **Workbooks** |                  |                  |
| Workbooks also available in packs of 10 |                   |
| Foundation Workbook 1A |Foundation Workbook 1B |Foundation Workbook 1C |
| 978 019 842178 X | 978 019 842179 X | 978 019 842180 X |
| Middle Workbook 2A |Middle Workbook 2B |Middle Workbook 2C |
| 978 019 842186 X | 978 019 842187 X | 978 019 842188 X |
| Higher Workbook 3A |Higher Workbook 3B |Higher Workbook 3C |
| 978 019 842194 X | 978 019 842195 X | 978 019 842196 X |

| **Teacher Guides** |                  |                  |
| Foundation Teacher Guide 1A |Foundation Teacher Guide 1B |Foundation Teacher Guide 1C |
| 978 019 842186 X | 978 019 842187 X | 978 019 842188 X |
| Middle Teacher Guide 2A |Middle Teacher Guide 2B |Middle Teacher Guide 2C |
| 978 019 842194 X | 978 019 842195 X | 978 019 842196 X |
| Higher Teacher Guide 3A |Higher Teacher Guide 3B |Higher Teacher Guide 3C |
| 978 019 842202 X | 978 019 842203 X | 978 019 842204 X |

| **Series Guide** |                  |                  |
| Series Guide for Teachers |                  |                  |

**DISCOVERING MATHEMATICS MANIPULATIVES**

- Discovering Mathematics Manipulatives Pack: Algebra Disks 978 019 842807 X
- Discovering Mathematics Kerboodle Contains all digital resource 978 019 842231 X
- Discovering Mathematics Kerboodle Books Contains all Kerboodle Student Books 978 019 842221 X

**Let’s Learn To**

- Use fractions, decimals and percentages as a fraction of a whole
- Understand between improper fractions and mixed numbers
- Multiply mixed fractions, multiply fractions and cancel common factors
- Multiply fractions by a fraction
- Divide two fractions on a calculator and remove numbers from fractions
- Use fractions in practical situations
- Work with fractions as multiple entries

**DISCOVERING MATHEMATICS ONLINE RESOURCES**

- Short films in Kerboodle accompany each chapter opener, introducing topics in a real-world context

**Key Stage 2/3 transition support**

**Discovering Mathematics** supports the transition of Year 7 students from Key Stage 2 to 3 in several crucial ways:

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Problem-solving is at the heart of Discovering Mathematics. Every chapter section finishes with an exercise in three levels. These build from fluency questions in Level 1 through to word-based problems in Level 3, giving students the skills they need to start tackling GCSE.

New concepts are developed with enormous care in Discovering Mathematics to build student understanding. Visual representations are prioritised. 
Explanations, worked examples and class activities provide a structured way for students to explore the maths and gain a deeper understanding.

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Every exercise finishes with word-based problems, to test the depth of students’ understanding and to prepare them for Key Stage 4.

The concept of ‘equivalent fractions’ is carefully developed on this page, firstly with diagrams and explanation, and then with worked examples that progress in difficulty from basic fluency to problem-solving.

Activities allow students to gain a deeper, firmer understanding of new concepts like fractions.

Every worked example is followed by a ‘Try It’ question to provide an immediate intervention.

Class Activities in the Student Book provide ideas for paired and group work.

Answers are written with complete sentences to encourage the precise use of language and reinforce good habits.

Easily accessible Student Book answers:

We know it’s important for you and your students to have easy access to the answers for the Student Book questions, so we have provided three options for you.

1. Short answers in the back of the Student Books
2. Fully worked solutions in the Teacher Guide, with GCSE 9-1 grades indicated
3. Try It! videos in the digital book on Kerboodle show a narrated walk-through of key worked examples. These support students in developing their reasoning skills and in using precise mathematical language.

Every exercise finishes with word-based problems, to test the depth of students’ understanding and to prepare them for Key Stage 4.

Level 1 questions test basic fluency. Using ‘intelligent practice’, there is minimal variation between questions to throw the spotlight onto the one key variable, the one new concept that students are learning.
Baseline tests

Baseline tests on Kerboodle carefully assess Year 7 students’ knowledge across all the major strands (Number, Algebra etc.), to help build a profile of their strengths and to help with setting.

A bespoke tracking tool provides the results in an easy-to-use format, along with intervention suggestions.

End-of-topic tests

A Revision exercise in the Student Book and an End-of-Chapter test on Kerboodle provide assessment for every topic in the series.

End-of-Term/Year tests

Termly ‘Review exercises’ in the Student Books and End-of-Year tests on Kerboodle provide a summative assessment opportunity for all your students.

Track your students’ progress

On Kerboodle you will find our widely used ‘Student Assessment Tool’ that allows you to record and track every student’s progress through the year.

9–1 GCSE grades show what level each student is working at.

Workbooks

Workbooks provide extra practice for students in the classroom or at home. Assessments are split into three levels and reflect the Student Book lesson structure.

Workbook answers provided in two easily accessible formats

1. Short answers FREE for customers to download ONLINE (password-protected)
2. Fully worked solutions with 9–1 GCSE grades on Kerboodle (teacher-only access)

Science and Finance icons make students aware of how mathematical ideas connect with other subjects

Problem-solving is flagged throughout to help students develop their skills

Track Your Progress Checklists at the start of each Workbook enable students to assess their learning and know when to ask for help.
Teacher Guides

The Teacher Guides are an essential course companion, written for both specialist and non-specialist teachers. Suggested Schemes of Work support departmental planning, and Notes on Teaching provide advice on how to approach each lesson. Fully worked solutions for all Student Book questions support the development of reasoning skills, with an emphasis on using precise mathematical language.

Teacher Resources

Notes On Teaching Chapter 3 Introduction to Algebra

2. Let's Represent Numbers

Learning Objectives:

• To understand the use of letters to represent numbers
• To be able to simplify algebraic expressions

Resources:

• Manipulatives
• MyMaths links

Overviews for each Student Book chapter identify the suggested teaching sequence and specific teaching points to consider for each chapter section.

Quick reference to the resources in the series for each chapter:

MyMaths links provide an opportunity for further practice and support.

9-1 GCSE grades for every Student Book question.

Series Guide for Teachers

Berinderjeet Kaur, Robert Wilne and Naomi Norman

This easy-to-read guide offers an overview of the mastery approach and how it can be implemented in your school.

- Jargon-free explanations that uncover the secrets of Singapore’s extraordinary maths success
- Explains the key principles of teaching for mastery
- Case studies offer practical tips on introducing the approach into your maths department
- Key features of the series are explained, with advice on how to make the best use of all components, including the Kerboodle digital resources.

Manipulatives

Concrete manipulatives to help students master algebra are available in class-sets, colour-coded to match the Student Books.

Discovering Mathematics Manipulatives Pack: Algebra Discs

- To support activities in Higher, Middle and Foundation Tiers
- For operations using positive and negative integers
- For understanding of algebraic expressions and operations
- Class set contains 20 Student Sets for sharing in class (1,600 discs in total)
- Each Student Set includes 80 two-sided positive/negative discs of 5 different colours
- All disks are double-sided: 1/-1, x/-x, y/-y, x²/-x², y²/-y²

Professional Development

If you’re interested in finding out more about Discovering Mathematics from one of our experts, and would like to host a free Introductory event for your own school and other local schools, please get in touch. We are keen to hear from you.

We can also offer practical, expert support with implementing the mastery approach in your school. Our courses are designed to help teachers at all stages of their careers. To find out more -

email: discoveringmathematics@oup.com
Call: 01865 353070
Discovering Mathematics Kerboodle provides complete support for digital practice and assessment. It includes:

- **Digital editions of all nine Student Books** for front-of-class use, with hotspots on the page linking directly to videos, assessments, and further support on MyMaths.
- **Complete assessment scheme** offers end-to-end support and progress tracking through Key Stage 3 with printable baseline tests, end-of-chapter tests and end-of-year tests.
- **Auto-marked tests** for each chapter give you and your students instant feedback, allowing for rapid intervention.
- **Printable self-assessment checklist** for students to track their own progression.
- **Fully worked solutions** to all questions in the Workbooks, Graded Question Banks and printable assessments show students how to reason and present their answers using precise mathematical language.
- **Unique worked example videos for key Try It! questions** facilitate working through solutions in the classroom.

**Also available**

Discovering Mathematics Kerboodle Books provides online student access to all nine Student Books for use in school or at home.

**Online resources**

**Discovering Mathematics Kerboodle** containing all Student Books, videos, interactive and assessment resources for front-of-class use and homework.

*978 019 842231 0*

**Discovering Mathematics Kerboodle Books** containing digital versions of all 9 Student Books for student and teacher access.

*978 019 842672 1*
Teacher Training and Professional Development

How to Teach Mathematics For Mastery
Dr Helen Drury

Renowned maths expert, Dr Helen Drury, offers an invaluable guide to what mastery is, and how to implement it in a Secondary Maths department.

978 019 841409 4 | PB

How to Enhance Your Mathematics Subject Knowledge
Jemma Sherwood

This book explores core mathematical concepts, equipping readers with the depth of knowledge and confidence to teach all students of all abilities. A valuable refresher for subject experts and essential reading for non-specialist teachers.

978 019 842326 3 | PB

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Web:  www.oxfordsecondary.co.uk/discoveringmathematics

Get support or register for a free Kerboodle trial
Email secondary.enquiries@oup.com or contact your local educational consultant:
www.oxfordsecondary.co.uk/repfinder

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