Second Edition

Maths Progress

Your guide to our KS3 maths course

pearsonschools.co.uk/
mathsprogress

Pearson

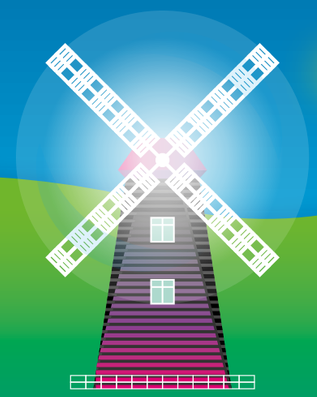
Key Stage 3 Maths has evolved, so our resources have too

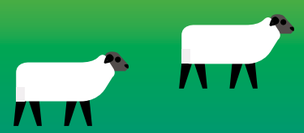
We want every student to engage with the power of maths so they can develop the skills and confidence to achieve and progress throughout their lives.

That's why **Maths Progress (Second Edition)** has been built on our well-loved 2014 course, your feedback and the latest research to engage your Key Stage 3 students, boost their mathematical confidence and give them the best preparation for GCSE study and beyond.

Shown to build

- ☑ confidence
- ☑ progression
- ☑ problem-solving
- ☑ fluency**





Start a 30-day free trial of Maths Progress (Second Edition)

** Findings from the Independent research study with the Institute of Education, UCL about the effectiveness of the course

What's behind the evolution?

The Maths Progress course has been purposefully updated to support you and your students with making the most of Key Stage 3 maths and preparing for their next steps.

We've used the following…

KS3 Maths Progress is used in 2,300 schools

+

KS3 Maths Progress being in classrooms since 2014

+

Feedback from thousands of teachers and students

+

An independent research study with the Institute of Education, UCL focusing on the effectiveness of KS3 Maths Progress

+

Reviews by global experts in teaching for mastery

+

'The 10 key principles of building confidence in maths' *(see page 8)*

+

Working alongside teachers in our Teacher Partner Programme to ensure that our resources really deliver what's needed

+

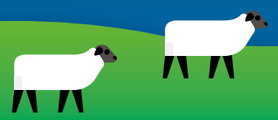
The latest cutting-edge approaches such as Purposeful Practice *(see page 19)*

to shape a course with more of what you love…

- **Helping KS3 students master maths with confidence** with an established, UK-specific approach that draws upon global best practices and cutting-edge research
- **Tried-and-tested differentiation** with a unique unit structure to support every student's progress
- **Focus on confidence, progression, problem-solving and fluency**
- **Consistency across 11–16** through seamless alignment with our GCSE Maths courses

and to take it even further…

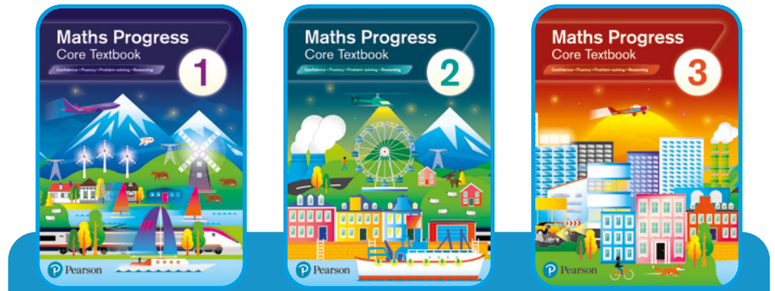
- **A well-paced and structured Core Curriculum**, creating a connected pathway you can use with your whole cohort
- **Updated textbooks and digital services** that work together to give the fullest support for planning, teaching, assessing and progress-tracking across KS3 and on to GCSE
- **Extra skills-building support and practice** to consolidate learning, deepen understanding and forge connections between topics
- **Updated and appropriately levelled assessments** that reflect the latest exams to ease and bolster students' progression to GCSE



The series at a glance

There's no one 'right' way to teach maths. That's why Maths Progress (Second Edition) has several components that you can choose and use to create the course that works best for you and your students.

Textbooks with tried-and-tested differentiation

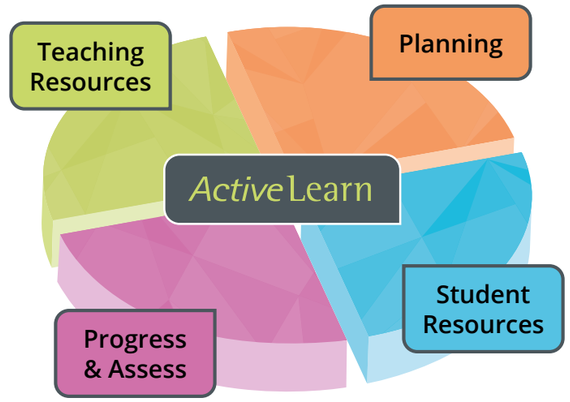


Core Textbooks – for your whole cohort

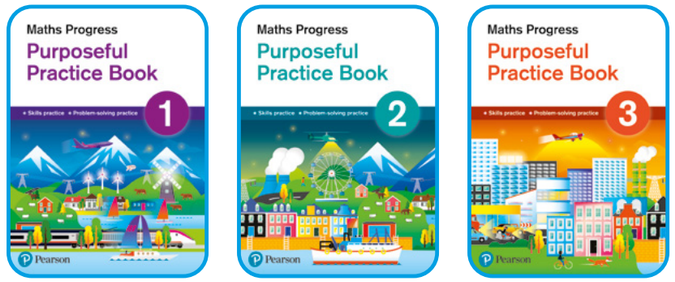
Support Books
– strengthening skills and knowledge

Depth Books
– extending skills and knowledge

ActiveLearn – your online toolkit



Purposeful Practice Books – a different kind of practice book



Explore free samples, ActiveLearn resources, and start a free trial online at: **pearsonschools.co.uk/mathsprogress**

A unique approach to boosting students' mathematical confidence

Every student can be a confident mathematician.

That's why the Maths Progress series is specifically founded on key principles to nurture students' confidence in maths so they can believe it too.

And if they can believe it, they can persevere, achieve, and progress.

The 10 key principles of building confidence in maths

These evidence-based principles underpin Maths Progress to boost students' confidence and raise attainment:

- ☑ Fluency
- ☑ Problem-solving
- ☑ Reflection
- ☑ Mathematical Reasoning
- ☑ Progression
- ☑ Linking
- ☑ Multiplicative Reasoning
- ☑ Modelling
- ☑ Concrete–Pictorial–Abstract (CPA)
- ☑ Relevance

And the approach works…

From what teachers, students and research studies have told us, we've seen that the Maths Progress series has helped students' confidence in maths grow across the world.

> Students do say 'I like maths' a lot more than they used to. Maths Progress has obviously contributed to that.
>
> *– Head of Maths**

> My confidence has grown.
>
> *– Year 8 Student**

> Everyone can have a go, it doesn't matter if you a make a mistake. There is that environment that's been created and I would say these resources have helped do that.
>
> *– Maths Teacher*
> *Hamstead Hall Academy*

Effectiveness of KS3 Maths Progress highlighted by an independent research study with the Institute of Education, UCL

* Quotations from the independent research study with the Institute of Education, UCL about the effectiveness of KS3 Maths Progress

The Core Curriculum your whole cohort can use

To help every student become a confident mathematician, Maths Progress (Second Edition) is built on a well-paced Core Curriculum, creating a connected pathway that all your students can follow.

- **Sequenced to ensure topics and concepts are revisited and built upon throughout KS3**, to embed conceptual understanding and develop problem-solving skills
- **Accessible starting points for every lesson** to boost confidence and identify misconceptions early
- **Consistent and accurate use of mathematical language and explanations**, to give students the vocabulary they need to reason mathematically
- **Built-in differentiation enables all students to work on the same topic at the same time**, so you have the flexibility to use it with sets or mixed-ability classes
- **Fully aligned Core, Support and Depth books, with online and printable homework activities** to help students build understanding at the level that's right for them
- **A free interactive scheme of work** brings together teacher guidance, resources and paid-for assessments all in one place, to help plan the most effective lessons

How it works

The Core Textbooks and ActiveLearn materials are designed for every class to use.

Core Textbooks – for your whole cohort

Based on a single, well-paced curriculum with built-in differentiation, fluency, problem-solving and reasoning so you can use them with your whole cohort. They follow the unique unit structure that's been shown to boost confidence and support every student's progress.

Aligned Support and Depth materials enable students to work at the level that's right for them.

Support Books – strengthening skills and knowledge

Provide extra scaffolding and support on key concepts for each lesson in the core curriculum, giving students the mathematical foundations they need to progress with confidence.

Depth Books – extending skills and knowledge

Deepen students' understanding of key concepts, and build problem-solving skills for each lesson in the core curriculum so students can explore key concepts to their fullest.

Tried-and-tested differentiation to support every student

To help your Key Stage 3 students progress and master maths with confidence, differentiation is embedded within the structure of each unit in the Core Textbooks.

- Unique UK-specific approach
- Draws on global best practice and cutting-edge research
- Effectiveness evaluated in a study with the Institute of Education, UCL
- Aligns seamlessly with our GCSE resources for a consistent 11-16 experience
- Enables students to personalise their learning

> The resources help me check my progress so I can look back and see how far I've come. It also allows me to simplify the question if I don't understand it the first time.
>
> – *Student**

> There is that clear structure embedded within each topic, and as a result the lessons have the questions building from basic skill to really advanced skill[s]. But they are open-ended – there are so many different approaches you can take.
>
> – *Maths Teacher**

How it works...

Master

1 Students are helped to **master** fundamental knowledge and skills over a series of lessons.

Check

2 Before moving on with the rest of the unit, students **check** their understanding in a short formative assessment, and give an indication of their confidence level.

3 Students decide on their personalised route through the rest of the unit:

In areas where they have yet to develop a solid understanding and/or they do not feel confident, they can choose to **strengthen** their learning:

Strengthen

Extend

In areas where they performed well in the assessment and also feel confident, they can choose to **extend** their learning.

Test

4 Finally, students do a **test** to determine their progression across the unit.

You can use the Support and Depth Books at any point throughout the unit. They're designed to give the right level of support and additional problem-solving content to help strengthen students' understanding of key concepts.

* Quotations from the independent research study with the Institute of Education, UCL about the effectiveness of KS3 Maths Progress

A closer look at the Core Textbook unit structure

Master

Master | Check up p48 | Strengthen p50 | Extend p55 | Unit test p57

2.6 Negative numbers

- Order positive and negative numbers
- Add and subtract positive and negative numbers
- Begin to multiply with negative numbers

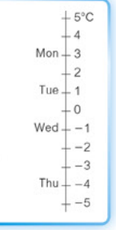
ActiveLearn
Homework
Videos
Planning

Warm up

1 **Fluency** Count down from 5 to −5.

2 This temperature scale shows positive and negative temperatures in degrees Celsius (°C).
- **a** What was the temperature on
  - **i** Monday **ii** Tuesday
  - **iii** Wednesday **iv** Thursday?
- **b** Is the temperature getting warmer or colder from Monday to Thursday?

3 The temperature now is 14 °C. It cools down by 5 degrees. What is the new temperature?



Worked example

The temperature is −2 °C. It gets 5 °C warmer. What is the new temperature?

Use a number line.
Start at −2°C.
Count up 5°C.

Key point The symbol > means greater than. The symbol < means less than.

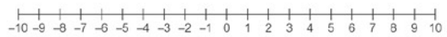
6 Write the correct symbol, < or >, between each pair of temperatures.
- **a** 3 °C ... 9 °C **b** 8 °C ... 2 °C **c** −3 °C ... 5 °C
- **d** 6 °C ... −2 °C **e** −4 °C ... −3 °C **f** −2 °C ... −7 °C

7 Write the correct symbol, < or >, between each pair of numbers.
- **a** 4 ... 7 **b** 5 ... 2 **c** 9 ... −1
- **d** −6 ... 3 **e** −3 ... −8 **f** −7 ... −2

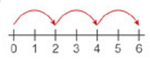
8 Here are the goal differences of some football teams. Arrange each set of numbers in order of size, smallest first.
- **a** 7, 8, 19, −2, −5, −14, −9
- **b** −4, −6, −2, −11, −6, 7, −13
- **c** −21, −30, 24, 63, −12, −41, 23, −15

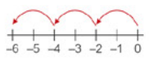
Q8 hint Use a number line to help.

9 Use a number line to work these out.
- **a** −3 − 1 **b** −3 − 2 **c** −3 − 3 **d** −3 − 4 **e** −4 − 3
- **f** −4 − 4 **g** −4 − 5 **h** −5 − 4 **i** −5 − 5 **j** −5 − 6



10 Work out
- **a** 3 − 4 **b** 2 − 4 **c** 1 − 4 **d** −4 + 3 **e** −4 + 4
- **f** −4 + 5 **g** −4 + 6 **h** −5 + 6 **i** −6 + 8 **j** −8 + 6

11 Work out
- **a** 3 × 2 

- **b** 3 × −2 

- **c** 4 × 1 **d** 4 × −1 **e** 2 × 5 **f** 2 × −5
- **g** 2 × 3 **h** 2 × −3 **i** 6 × 8 **j** 6 × −8

Check up

Master p26 | Check up | Strengthen p50 | Extend p55 | Unit test p57

2 Check up

Written methods

1 Work out these calculations. Make an estimate to check your answer.
- **a** 318 + 471 **b** 431 + 289 **c** 8329 − 6645 **d** 4137 − 82

2 Work out 404 ÷ 4. Show how you checked your answer.

3 Work out these calculations. Make an estimate first.
- **a** 2513 × 4 **b** 28 × 34 **c** 419 ÷ 19

Mental work

4 **a** Round 28417 to the nearest 10000.
b Round 562104 to the nearest 10000.

5 Work out
- **a** 8 × 30 **b** 60 × 70 **c** 20 × 5000

6 Work out 23 × 9.

7 **a** In Edinburgh the temperature was −3 °C. In Liverpool the temperature was 5 degrees warmer. What was the temperature in Liverpool?
b In Cardiff the temperature was 4 °C.

Strengthen

Master p26 | Check up p48 | Strengthen | Extend p55 | Unit test p57

2 Strengthen

Written methods

1 Work out these calculations. The first two have been started for you.
- **a** HTO: 458 + 214 = 2 (1)
- **b** 726 + 238 =
- **c** 348 + 491 **d** 223 + 585 **e** 2438 + 192
- **f** 164 + 52 **g** 75 + 139 **h** 642 + 4389

Q1a hint Write 1 ten in the Tens column.

Q1f hint Line up the Hundreds, Tens and Ones.

2 Work out these calculations. The first two have been started for you.
- **a** HTO: 5 3 12 − 123 = 9
- **b** 974 − 526 =
- **c** 346 − 182 **d** 925 − 671 **e** 518 − 236
- **f** 764 − 493 **g** 3495 − 1523 **h** 6822 − 351

Q2a hint Use 1 ten from the Tens column to make 12 ones.

Extend

Master p26 | Check up p48 | Strengthen p50 | Extend | Unit test p57

2 Extend

1 **a** Work out
- **i** (4 + 4) ÷ (4 + 4) **ii** (4 × 4) ÷ (4 + 4)
- **iii** (4 + 4 + 4) ÷ 4 **iv** 4 × (4 − 4) + 4
- **v** (4 × 4 + 4) ÷ 4 **vi** 4 + (4 + 4) ÷ 4

b What do you notice about your answers to part **a**?
c Reasoning How could you use four 4s to make 7? ... to make 8?

2 **a** Which of these numbers are square numbers?
123, 169, 101, 144, 230
b Reasoning Gwynfor says, 'There is no square number between 122 and 140.' Is he correct?

3 Problem-solving / Reasoning
1 September 2010 was a Wednesday.
1 September 2011 was a Thursday.
When will 1 September next fall on a Wednesday?

Q3 hint You need to take leap years into account.

4 Problem-solving / Reasoning Seating arrangements need to be made for 42 girls and 36 boys attending a school prom. All tables need to have the same number of girls. All tables need to have the same number of boys. All tables need to have at least one girl and one boy.

Unit test

Master p26 | Check up p48 | Strengthen p50 | Extend p55 | Unit test

2 Unit test

1 Round 2486005 to the nearest 100000.

2 Work out 1063 − 297

3 Work out
- **a** 82 × 6
- **b** 371 × 62

4 Work out
- **a** 168 ÷ 8
- **b** 8473 ÷ 13

5 A weather chart shows these temperatures.

5 °C, −1 °C, 3 °C, −4 °C, 0 °C, −5 °C

- **a** Which is the warmest temperature?
- **b** Is 0 °C colder or warmer than −1 °C?

Explore free samples, ActiveLearn resources, and start a free trial online at: **pearsonschools.co.uk/mathsprogress**

Focus on skills-building and practice in the classroom

Teachers and students told us that they want more opportunities to practise and build skills.

That's why Maths Progress has more meaningful practice built in across our books and ActiveLearn than ever before.

ActiveLearn **Over 500 editable and printable homework worksheets** linked to each lesson and differentiated to the Core, Support and Depth strands

ActiveLearn **2,500+ auto-marked online homework activities**

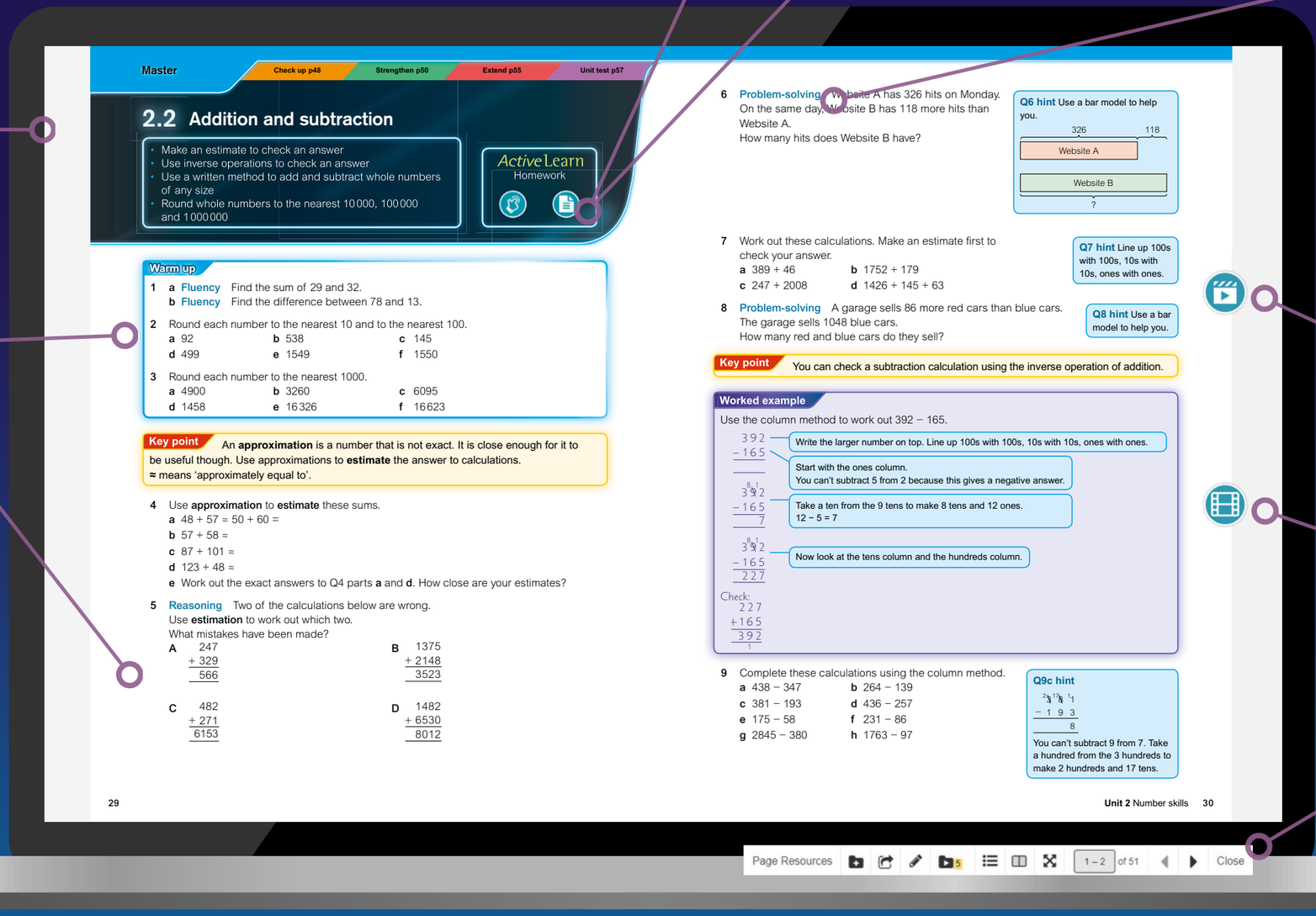
Clear **problem-solving** practice

ActiveLearn Easy-to-use **front-of-class materials** online

Signposted exercises to boost **reasoning skills, fluency and reflection**

Synoptic questions that build connections between topics – a key part of progressing to GCSE (9–1) study

Updated and appropriately levelled questions that reflect the latest GCSE (9–1) exams so students are familiar with the style they'll see in later years



ActiveLearn **Teacher-to-teacher guidance videos** on topic points, misconceptions and teaching approaches

Guidance for students, including worked examples, key points, hints and videos also available on ActiveLearn

ActiveLearn **Handy features** such as 'zoom' areas and 'playlist' tools make it easier to customise and use the resources during each lesson.

This sample is taken from the ActiveLearn front-of-class materials for Maths Progress (Second Edition).

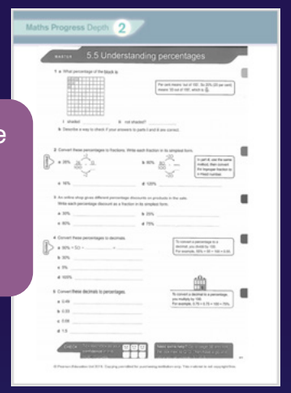
Explore free samples, ActiveLearn resources, and start a free trial online at **pearsonschools.co.uk/mathsprogress**

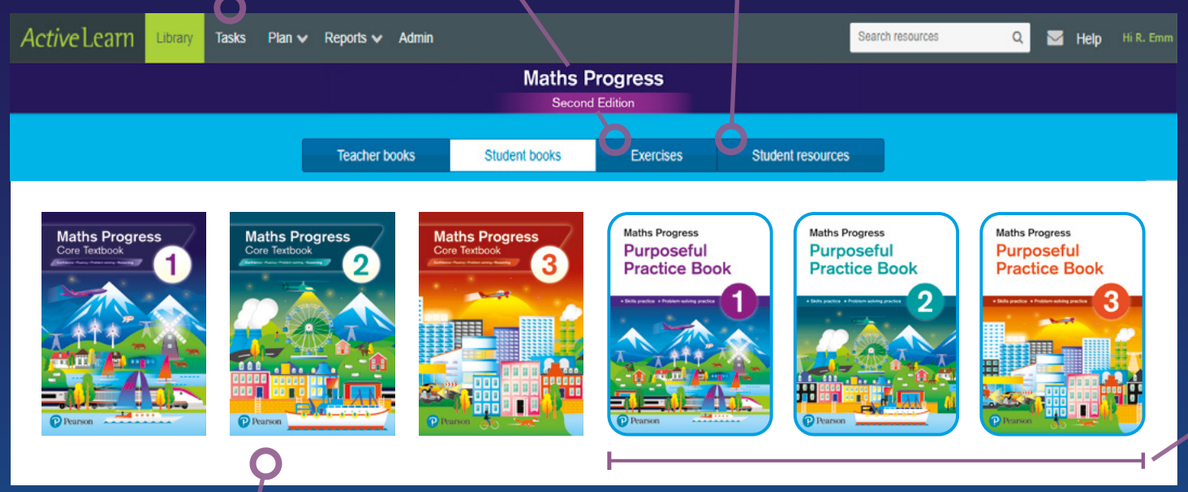
Focus on skills-building and practice out of the classroom

To help create a seamless learning experience for students, our ActiveLearn service gives online access to Maths Progress resources making them easy to use for independent study and homework.

Homework tasks are flagged to students when auto-marked online homework exercises are assigned to them.

Student resources include videos, animations and homework worksheets.





Online books that students can access anytime

This sample is taken from the ActiveLearn front-of-class materials for Maths Progress (Second Edition).

Try ActiveLearn for free at: **pearsonschools.co.uk/mathsprogress**

> The use of ActiveLearn for their independent learning resources at home has been really beneficial ... ultimately that is saving time in a working day for a teacher.
>
> *– Maths Teacher, Hamstead Hall Academy*

> I really enjoy the online videos because… it notes key points and how to do it and I can visually see someone solving a question when I don't understand.
>
> *– Year 8 Student**

Purposeful Practice Books and ActiveBooks

A different kind of maths practice book developed with UK teachers and based on cutting-edge approaches to help students make the most of practice.

Each of our Key Stage 3 books has over 3,750 questions using minimal variation that:

- ☑ build in small steps to consolidate knowledge and boost confidence
- ☑ focus on strengthening skills and strategies, such as problem-solving
- ☑ help every student put their learning into practice in different ways
- ☑ are fully aligned to the Core Textbooks
- ☑ give students a strong preparation for progressing to GCSE study.

* Quotations from the independent research study with the Institute of Education, UCL about the effectiveness of KS3 Maths Progress

Bolstering progression across KS3 and beyond

From free materials and in-built progression and tests throughout the books to the Progress & Assess suite in ActiveLearn, every element of Maths Progress (Second Edition) is designed to help your students progress with confidence.

> The students' confidence is improving from where it was. Part of that is that they are being challenged a lot more… KS3 Maths Progress has developed them a lot.
>
> *– Head of Maths**

> It prepares them and gives them a brief insight into what the GCSE will be like.
>
> *– Head of Maths**

> If I get stuck I'm like 'this question isn't going to beat me'… I'll just try and think of a way around it. And it just makes me want to finish the question a little bit more.
>
> *– Year 7 Student**

* Quotations from the independent research study with the Institute of Education, UCL about the effectiveness of KS3 Maths Progress

How Maths Progress (Second Edition) does this…

- **Free** **Editable interactive scheme of work** for Maths Progress (Second Edition)
- **Free** **Editable interactive scheme of work for 11–16 maths** that's linked to the official Pearson Edexcel GCSE (9–1) Mathematics scheme of work
- **Free** **KS3 and KS4 baseline tests** so you can assess each student's starting point at the beginning of Year 7 and the end of Year 9
- **In-built progression** with recaps, progress checks and questions throughout the books – including 'Challenge' and 'Reflect' sections and Unit tests
- **Differentiated pathways** with Support and Depth materials help students strengthen or extend their skills and understanding

Plus…

The fullest KS3 maths progression and assessment suite available with ActiveLearn Progress & Assess.

See more overleaf

Bolstering progression across KS3 and beyond

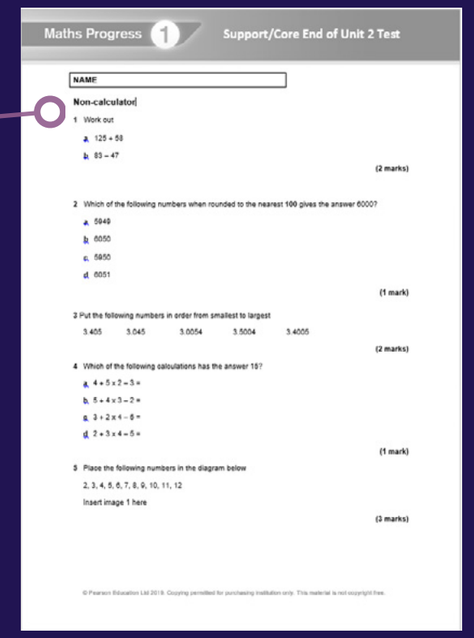
Maths Progress (Second Edition) also has a whole suite of progression tools and materials on ActiveLearn making it the only KS3 maths series to have fully aligned, high-quality assessments with accurate built-in data reporting and a GCSE-ready approach.

How ActiveLearn Progress & Assess works…

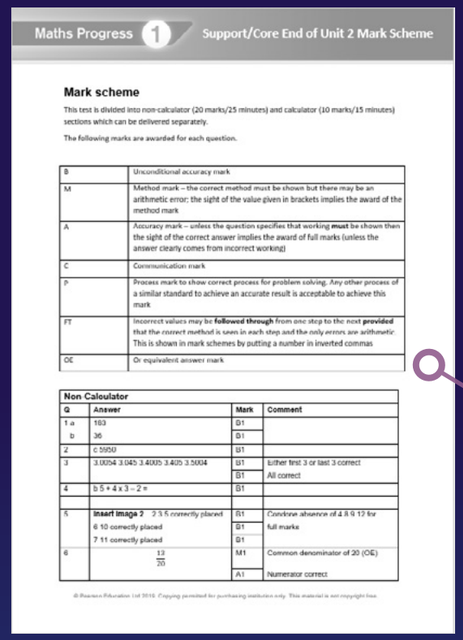
- **Designed to suit your needs**, the suite can support your existing progress-tracking methods or provide a complete solution
- **Aligns with resources across Key Stages 3–5** so you can consistently track progress in maths and other subjects across your school
- **30 pre-unit activities**, including games, recaps and knowledge organisers
- **96 KS3 assessments**, including baseline, end-of-unit, end-of-term and end-of year tests
- **Separate calculator and non-calculator papers** with mark schemes, online markbooks and indicative GCSE (9–1) grades
- An optional **Assessment Builder** tool enables you to create your own assessments based on Maths Progress questions

Note: This service is included as part of a full ActiveLearn subscription or is available as a separate Progress & Assess subscription.

Try ActiveLearn for free at: **pearsonschools.co.uk/mathsprogress**

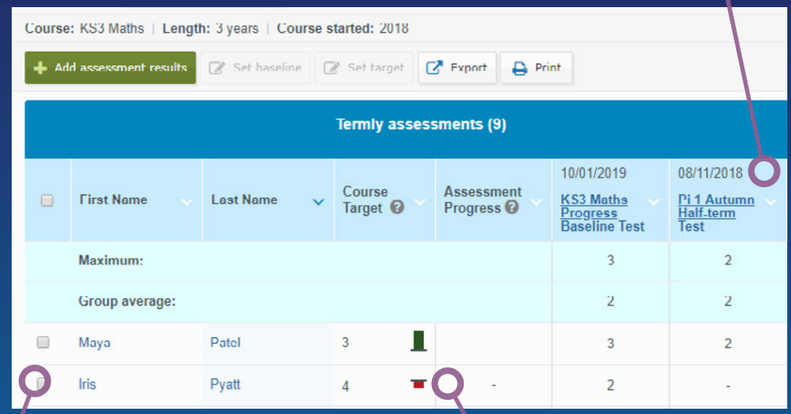


Our **two-tier assessment model** includes 60% common questions from Core materials.



Mark schemes provide clear marking guidance

Indicative 9–1 grades in online markbooks are based on student results, relative to their stage of learning.



Online markbooks track students' strengths and weaknesses, so you can see if individual or whole-class interventions are needed.

A RAG (red, amber, green) status is given for each assessment so you can see at a glance how students are doing per question, per assessment and per target.

Supporting 5–19 Progression

We believe that everyone should have the opportunity to enjoy exploring maths.

That's why all our Pearson resources, including Maths Progress (Second Edition), work together to help you equip your students with what they need to progress and take their next steps with confidence.

Primary

Aligned learning approaches

Hundreds of primary schools now adopt a mastery-led curriculum. Maths Progress is built on mastery principles, so students have a continuous approach from primary through to Key Stage 3.

POWER MATHS

Easing the transition from Key Stage 2 to Key Stage 3

To ensure every student starts from a similar point, Maths Progress consistently recaps and builds on prior learning from primary school.

Maths Progress

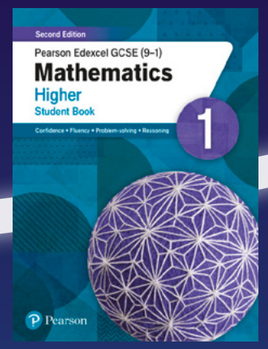
Secondary

Boosting confidence

Maths Progress is founded on key principles to ensure that students can master Key Stage 3 maths with confidence, in readiness for their next steps.

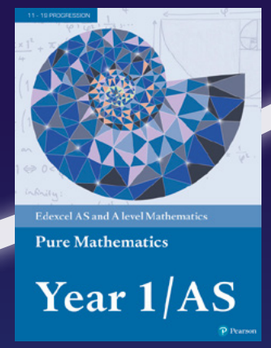
Building key skills for GCSE and beyond

Maths Progress embeds and signposts synoptic links and problem-solving skills – vital for further study and the future.



Smoothing the transition to next steps

With KS3-appropriate GCSE-style questions, Maths Progress familiarises students gets familiar with what they'll see in later years.



Consistency across the curriculum

Our resources follow similar formats and approaches to give a consistent teaching, learning and reporting experience.

Learn more at **pearsonschools.co.uk**

Like what you've seen? Explore more online!

This guide gives a snapshot of Maths Progress (Second Edition), but there's more to see online. Simply visit **pearsonschools.co.uk/mathsprogressonline** to see the bigger picture of what the course has to offer with a 30-day free trial of ActiveLearn.

Teaching resources

- Front-of-class materials for Core Textbook 1, Support Book 1 and Depth Book 1
- Starter activities
- Online and printable homework worksheets and answers
- Teacher-to-teacher videos

Planning

- Editable interactive scheme of work – bringing together teacher guidance, resources and assessments all in one place, to help plan the most effective lessons

Progress & Assess

- Sample assessments and markbooks
- Online tracking and reporting tools

Student resources

- ActiveBook samples of Core Textbook 1, Support Book 1, Depth Book 1 and Purposeful Practice Book 1
- Online homework activities and worksheets
- Worked example videos

Try ActiveLearn for free at **pearsonschools.co.uk/mathsprogress**

Why Maths Progress for KS3 (Second Edition)?

Comprehensive digital service including planning, delivery and homework-setting through ActiveLearn.

Textbooks and digital services that work together for planning, teaching and progress tracking from KS2, across KS3 and on to GCSE.

Built on mastery principles and Power Maths for KS2.

To ease the transition from KS2 to KS3, Maths Progress (Second Edition) consistently **recaps and builds on prior learning** from primary school.

*Our Power Maths for KS2 series is perfectly aligned to the White Rose Maths progressions and schemes of learning, and recommended by the DfE.**

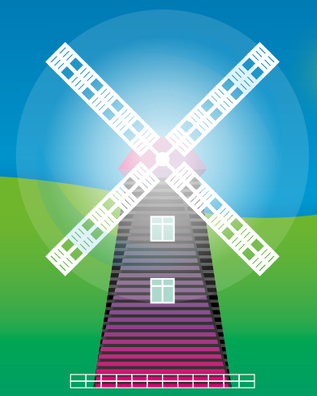
Bolster students' progression to GCSE with a format that seamlessly aligns with our GCSE Maths resources.

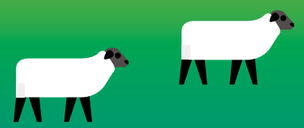
Appropriately levelled questions and updated assessments that reflect the latest GCSE (9–1) exams plus **5-year Schemes of Work**.

Shown to help KS3 students master maths with confidence with an established, UK-specific approach that draws upon global best practices and cutting-edge research.

Builds on the results of an independent research study we conducted with the Institute of Education, UCL. You can read the full efficacy report on our **Tried, Tested, Trusted webpage.**

Underpinned by ten evidence-based principles of building confidence in maths. You can read more about the pedagogy behind the series on our **Confidence for all webpage**.





Click here to find out how it works

*Power Maths KS1 and KS2 have been judged by the DfE panel to meet the core criteria for a high-quality textbook.

Like what you've seen? Explore more online!

A tried-and-tested differentiation approach that supports every student's progress. Our unique unit structure has been used by 100,000s of students.

How it works

1 Master

Students are helped to **master** fundamental knowledge and skills over a series of lessons.

2 Check

Before moving on with the rest of the unit, students **check** their understanding in a short formative assessment, and give an indication of their confidence level.

3 Personalise

Students decide on their personalised route through the rest of the unit:

In areas where they have yet to develop a solid understanding and/or they do not feel confident, they can choose to **strengthen** their learning:

Strengthen

Extend

In areas where they performed well in the assessment and also feel confident, they can choose to **extend** their learning.

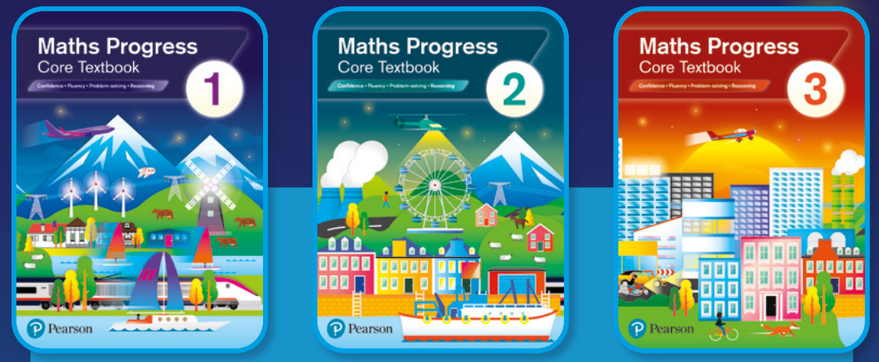
4 Test

Finally, students do a **test** to determine their progression across the unit.

Flexibility to create the course that works best for you, and all of your students.

Core Textbooks follow a single, well-paced curriculum with built-in differentiation, fluency, problem-solving and reasoning so you can use them with your whole cohort.

Support and **Depth** to be used in addition to Core when needed for extra scaffolding and support or to extend students' understanding of key concepts.



Core textbooks – for your whole cohort

+

Support Books
– strengthening skills and knowledge

+

Depth Books
– extending skills and knowledge

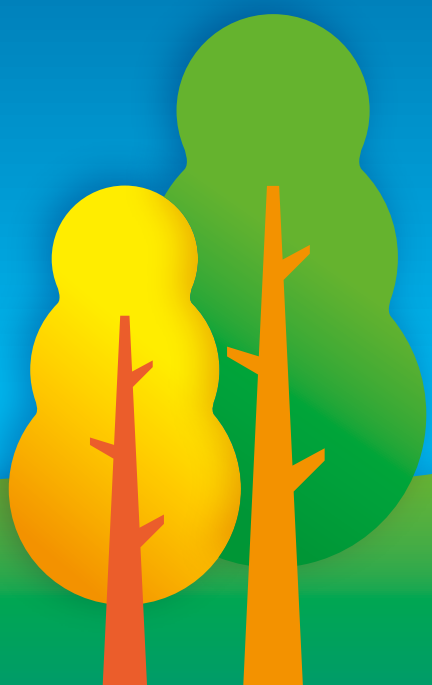
Sign up for a free trial

What next?

If you like what you've seen, visit **pearsonschools.co.uk/mathsprogress** to:

- sign up for a 30-day free trial
- let us know you'd like to chat with us about the course
- buy the resources online.

pearsonschools.co.uk/mathsprogress



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