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Mathematics
Mastery

A young girl with blonde hair in a ponytail, wearing a red school uniform with a crest, is sitting at a desk and writing in a notebook with a blue pencil. The background is a blurred classroom setting.

Helping pupils
achieve in maths with
a fully resourced
curriculum programme

Supporting subject mastery in Primary Maths



Pupil success through empowered teaching

Teachers hold the key to unlocking pupils' potential, and we are here to help you on that journey.

Grown out of Ark Schools, one of the highest achieving academy groups in the UK, our team of well researched and highly skilled curriculum designers and expert trainers partner with you and your team to provide consistent, high-quality education for all pupils.

We help you provide your best teaching to all pupils, working with you to close the attainment gap. We've seen the impact on disadvantaged pupils through our Ark Schools (making nearly half a grade more progress than their peers nationally) and are here to give all pupils the opportunities that an excellent education provides.



Success for all

We believe that education has the power to help every young person excel – and it all starts with you.

By enriching the curriculum to move beyond achieving grades alone, we create a learning structure that constantly builds contextual and conceptual knowledge.

Our holistic approach helps you to identify and support specific needs. As a result, we help to narrow the attainment gap, ensuring no child is left behind.

Teachers make the difference

Our programmes are built for teachers, because you are the people who can make a real difference to a young person's understanding.

Professional development is central to our approach. We build teachers' subject and pedagogical expertise without taking time away from the classroom.

We also ensure that teachers remain in control. The materials provided are fully adaptable, including pre- and post-teaching assistance, to make sure the learning can be tailored to the needs of your pupils.

Evidence meets practice

When creating our programmes, we conduct in-depth research into the latest curriculum designs and pedagogical theories. This approach means our support is always grounded in evidence-based principles.

Teachers also help to develop and test our curriculum in the classroom, meaning you can be confident that our programmes are accessible, easy to implement and make a tangible difference to the teacher and pupil experience.



Driving progress

Ark Curriculum Plus is already having an impact in hundreds of primary schools across the UK.

Our Mathematics Mastery programme offers:

- A meticulously sequenced and interlinked Reception, KS1 and KS2 maths curriculum
- Integrated professional development and planning tools to support teachers' curriculum and pedagogical knowledge
- Fully resourced classroom materials, allowing pupils of all abilities to make explicit, observable progress throughout the primary years



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The Mathematics Mastery programme is also available for Key Stage 3

Learn more: www.arkcurriculumplus.org.uk

Proven impact

Mathematics Mastery Primary has been shown by the Education Endowment Foundation (EEF) to give Key Stage 1 pupils on average **two month's additional progress** after one year on the programme.



“On average, pupils in schools adopting Mathematics Mastery made more progress than similar pupils in schools that did not adopt the programme.”

EEF Report

Teachers in our partner schools repeatedly tell us what a difference our programme is making:

“Since joining Mathematics Mastery we've seen a significant change in the children's understanding and enjoyment of maths and strengthened subject knowledge and confidence among staff.”

Claire Pettman | Assistant Headteacher
St Stephen's Catholic Primary School

“The programme has been brilliant for teacher confidence because of the training and resources available.”

Jodie Wallace | Mathematics Lead
Thornaby Church of England Primary School

Visit our website to hear more about the positive impact Mathematics Mastery has had in other primary schools:
www.arkcurriculumplus.org.uk/case-studies

Our approach

We are committed to our partnership together, knowing the journey to full-school transformation takes dedication and a consistent approach over time.

Providing integrated, consistent professional development, helping you improve pupils outcomes

We work with a goal in mind – to help your teachers deliver their best teaching possible. Our style of support responds to your team’s growing confidence and expertise.

Stage 1: Launch

Stage 2: Develop

Stage 3: Sustain



Launch 1 YEAR

Laying the foundations for impactful implementation

PD to lay foundations:

- Whole-school and 1:1 training on subject knowledge and pedagogy for your teachers
- Dedicated training for your Mastery Lead
- Dedicated support from our team of Development Leads to help determine your areas of focus for greatest impact

Develop 1-3+ YEARS

Building on your team’s subject and pedagogical understanding to develop their practice

PD to hone classroom skill:

- Teacher training covering planning and adaptation of lessons, diagnosing and responding to learning gaps, providing challenge, assessment, and more
- Further training of Mastery Lead, equipping them to provide in-house training
- Annual 360 review ensuring you’re on track in transforming pupil outcomes

Sustain ONGOING

Making the programme your own

On-demand PD:

- Regular webinars and embedded training within resources to refine your teachers’ classroom practice
- Annual summative assessment tracks pupils’ progress and identifies development areas
- Option to add-on personalised support

- ✓ Classroom resources
- ✓ Subject knowledge development
- ✓ Teaching guidance



Developing deep understanding

The programme is carefully sequenced to enhance pupils' understanding of maths. It is underpinned by the **Dimensions of Depth**, which address conceptual understanding, language & communication and mathematical thinking.

These support mathematical problem solving and enable pupils to make connections between topic areas, draw on representations to support their thinking and be prepared to articulate, justify and explain this thinking.



Route to recovery

To help support your school's route to recovery after the pandemic, the Mathematics Mastery programme includes:

- **Pre-unit diagnostic assessments** to help you identify if pupils have the necessary pre-requisite knowledge before they start the unit
- **Response signposts** that allow you to close these gaps through booster units, lessons and pre-teach resources
- **End of unit diagnostic assessments** to evaluate what pupils have learnt, with advice on next steps
- **Differentiated tasks** that provide activities for increased support and increased challenge in every lesson



What do I get when I join the programme?

Mastery Curriculum

The Mathematics Mastery curriculum is cumulative, building on learning and allowing pupils to make deep connections across topics.

We sequence concepts so that established ideas can be linked to new learning, supporting pupils in developing mastery by understanding the coherent and connected nature of the subject.

Full suite of resources, accessed online

The MyMastery learning platform offers 'anytime, anywhere' access to the full suite of Mathematics Mastery content. This includes all of the teaching support, assessment materials and lesson resources needed to deliver the programme.



Integrated Professional Development

Throughout, your team can make use of videos, tutorials and workshops to grow their subject and teaching expertise.

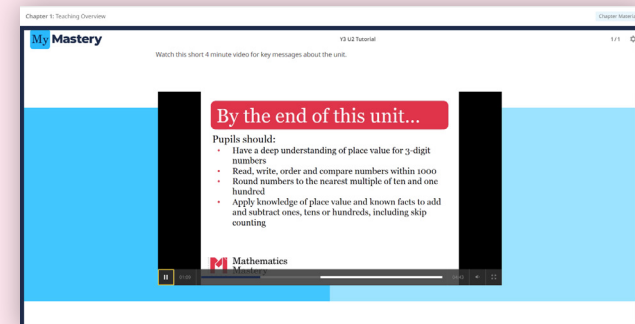
Our Tailored programme offers comprehensive support for schools new to delivering Mathematics Mastery Primary.

You'll receive in-person visits and one-to-one support, personalised training for your senior leaders and teachers, plus instant-access PD delivered online via our MyMastery learning platform.

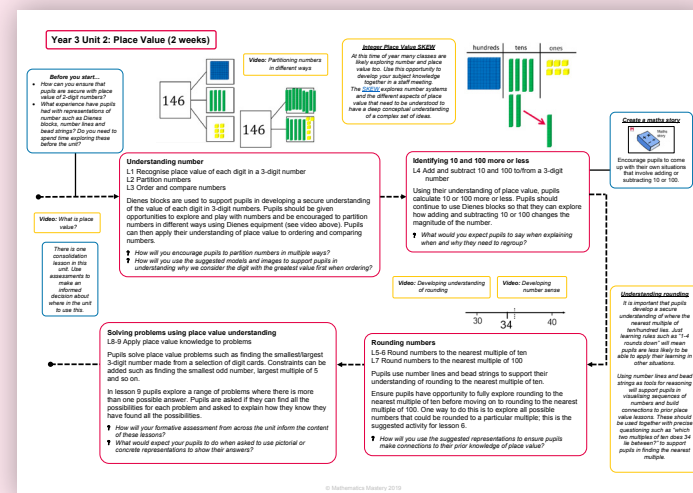
See page 19 for full details on pricing.

Teaching support

A number of videos support each unit including **unit tutorials** that outline key content, **knowledge recaps** for quick refreshers of subject knowledge and **modelling videos** to exemplify the tasks.



Unit narratives provide overviews of the key content and learning covered. These give teachers guidance on the sequence of lessons in the unit, possible adaptations and signposts to professional development videos and research articles.





Planning guidance outlines the core structure of each lesson, with details on adapting and differentiating the materials for learners.

Mathematics Mastery Year 3 Unit 2: Place value

Lesson 1: Reading and writing 3-digit numbers

Key Learning: To identify and represent 3-digit numbers
Lesson Overview: Pupils identify 3-digit numbers and understand what each digit represents.
Resources: Dienes blocks, digit cards, place value charts, Task Sheet
Transitions: Counting on and back in 50s and 100s from 0 to 1000

Do Now: Exploring number information
 Show the Big Picture (backpack) and explain to the pupils that the first week of this unit is about the place value of 3-digit numbers. Ask them to think of 3-digit numbers that could relate to the Big Picture. e.g. How many people visit the park? What is the score on the darts game? How high are the rides?

New Learning: Identifying what is represented by each digit in a 3-digit number
 Display the number 245. Point to the 2 and ask pupils:
 ? What does this digit represent? (two lots of one hundred)
 Repeat with the digits 4 and 5. Represent the number with Dienes blocks on the place value chart to show how the values of each column are different.
 Remind pupils that our number system uses place value, which means that the position of a digit tells us its value, allowing us to make any number from just ten digits.
 ? Why do we write 245 instead of 200405? Zeros are only needed as place holders if there are no units in one or more of the columns to the right of the first digit.
 Swap the digits round so that you make 425 and rearrange the same Dienes blocks.
 ? What is the value of each digit now? Is this representation correct?
 Ask pupils how to represent the number correctly. Show the dashboard from the Big Picture:
 ? How many hundreds? How many tens? How many ones?
 Make the number with Dienes blocks and ask pupils to say the value of each digit.
 ? How do we say this number and how is it written in numerals?

Mathematics Mastery Year 3 Unit 2: Place value

Lesson 2: Partitioning 2- and 3- digit numbers

Key Learning: To partition numbers in different ways
Lesson Overview: Pupils will learn to partition 2-digit and 3-digit numbers in different ways.
Resources: Dienes blocks, bead strings, part-whole models, place value spinners
Transitions: Number bonds with multiples of ten within one hundred

Do Now: Writing numbers in words
 Display the number 82.
 Display these numbers and ask pupils to write them in words.
 456, 718, 102, 481, 814.

New Learning: Partitioning 2-digit numbers
 ? How do we partition this number into tens and ones?
 ? What is the value of the tens digit? And the ones digit?
 Explain that this is one way of partitioning numbers into their different parts. We can separate the tens and ones. Model this using Dienes blocks and a bead string.
 Then model writing the tens and ones in the two empty boxes and the equation $80 + 2 = 82$
 ? Can we partition 82 in any other ways? ($70+12$, $60+22$) Model with Dienes tens and beads.
 Ask pupils to demonstrate how to partition 82 in another way.

Talk Task: Partitioning 2-digit numbers
 Using place value spinners (tens and ones only), pupils create and represent 2-digit numbers. Pupil A uses the spinners to make a 2-digit number which they write in the whole of a part-whole model on their whiteboards. They partition it into two parts consisting of tens and ones only.
 Pupil B makes the same partition on a bead string and then moves the tens to create a different partition, explaining as they do. Pupil A makes the same partition with Dienes blocks and then moves tens to make another new partition, explaining as they do.
 Pupils swap roles and spin a new number.

Develop Learning: Partitioning 3-digit numbers
 Show 146 and ask pupils to partition this number into hundreds, tens and ones ($100 + 40 + 6$).
 Make the number with Dienes blocks.
 ? Can you rearrange the Dienes blocks to partition 146 in different ways?
 Link to calculations and ask, "If we needed to take away 50 from 146, what would we need to do?" Demonstrate that if we regrouped the hundred into tens, we could partition this in other ways e.g. $14 \text{ tens} - 5 \text{ tens} = 9 \text{ tens}$.
 Ask pupils to partition 328 into hundreds, tens and ones, using their Dienes blocks.
 ? Can you partition 328 in different ways?
 Share pupils' ideas, modelling with the Dienes blocks how the combinations may be different but they still have the same total.
 Model the Independent Task, demonstrating how to record the Dienes blocks pictorially on a place value chart.

Independent Task: Partitioning 3-digit numbers
 Pupils generate 3-digit numbers using the place value spinners. They make the number using Dienes blocks, partition it into hundreds, tens and ones and record their work in their books. Pupils then investigate partitioning in five different ways by moving the Dienes blocks and regrouping where necessary. You may choose for pupils to record some or all of these different partitions on separate place value charts alongside the original partition.
Possible adaptations:
 • Some pupils focus on partitioning into hundreds, tens and ones only.
 • Some pupils could choose a different resource to prove the different ways of partitioning.

Plenary: Explaining and justifying
 Choose pupils to explain the different ways they have partitioned their numbers and why their examples are correct.

Lesson resources

Slide decks are provided for each lesson, including notes and guidance to support delivery.

Key learning: To identify and represent 3-digit numbers

place value digit

numeral position

hundreds tens ones

Fully editable

Star Words

Saying what each digit in a number represents

Represent each digit of your chosen 3-digit number with Dienes.
 Say the value of each digit.

Talk Task

Partner A: I have chosen ...

Partner B: There is a _____ in the hundreds column.
 It represents _____ hundreds.
 It has a value of _____.

Identifying what is represented by each digit in a 3-digit number

245

- How many hundreds?
- How many tens?
- How many ones?

What number has been made with the darts?

New Learning

Maths Meetings are a vital part of the programme, providing fun opportunities for pupils to consolidate key areas of maths and develop fluency.

Assessment and intervention

The programme integrates formative assessment throughout, enabling teachers to assess depth of understanding and scaffold learning.

Pre-unit quizzes support diagnostic assessment of the pre-requisite concepts for each unit. Guidance is provided to support teachers in identifying misconceptions with signposts to address these through Maths Meetings and consolidation lessons.

Each unit also has a **post-unit quiz** to help evaluate pupil understanding.

Y3 U2 Pre-Unit Q1: To recognise the place value of 2-digit numbers and the number names.

Which number is represented here?

A B
 C D

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Y3 U2 Pre-Unit Q1: To recognise the place value of 2-digit numbers and the number names.

Which number is represented here?

Answer	Misconception	Response Signpost
A.	Incorrect. The pupil may have a confusion between the teen numbers and the tens numbers.	➤ Pupils need to have a good number sense of numbers to 100 and know the place value of the digits. They should be able to compose and partition 2-digit numbers and be ready to move on to 3-digit numbers. ➤ Booster: Year 2 Unit 1 Lessons 2, 3 and 4. These lessons focus on identifying tens and ones in a 2-digit number and partitioning 2-digit numbers. ➤ Booster: Year 2 Unit 1 Lesson 6 Reteach Representing 2-digit numbers which includes writing numbers in words.
B.	Correct. The pupil recognises the place value of 2-digits numbers and know the number names.	
C.	Incorrect. The pupil may have counted the discrete objects as one each.	
D.	Incorrect. The pupil may have reversed the digits.	

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Important concepts for Year 3 Maths Meetings

The topics below **must** be included each term for both fluency and because some key learning will not be revisited until a later term and requires ongoing consolidation. Teachers should also consult the more detailed guidelines in this document for suggested activities and other areas to include.

Throughout Year 3, **time, money and angles** should be regularly incorporated into Maths Meetings. After Unit 11 (Fractions), counting up and back in tenths should also feature regularly.

Term	Detail
Autumn	<p>Number:</p> <ul style="list-style-type: none"> Consolidate mental addition and subtraction for 2-digit numbers (with and without regrouping) using a range of calculation strategies Represent numbers to 1000 with concrete manipulatives and images, including number lines Place value of digits in numbers with up to three digits Derive multiplication and division equations using arrays (multiples of 2, 5 & 10) Recognise, find and write fractions of lengths, shapes and quantities Choose and discuss efficient calculation strategies for 3-digit addition and subtraction, emphasising using number bonds / make ten Derive facts from known facts 'if I know..., what else do I know?' (numbers) Doubles & halves (continue throughout the year) <p>Shape and Pattern:</p> <ul style="list-style-type: none"> Name and describe 2-D and 3-D shapes according to their properties Describe position, direction and movement in terms of straight line move angles Identify horizontal and vertical lines <p>Measures:</p> <ul style="list-style-type: none"> Read scales with intervals of 2, 5, 10 and 100 (comparing to increments) <p>Time:</p> <ul style="list-style-type: none"> Tell the time to the nearest five minutes <p>Money:</p> <ul style="list-style-type: none"> Coin recognition of all coins and notes (£5, £10, £20)
Spring	<p>Number:</p> <ul style="list-style-type: none"> Recognise that two halves/three thirds/four quarters are equal to one whole Count in halves, thirds and quarters within 10 Choose and justify efficient calculation strategies for age-appropriate calculation Derive facts from known facts (multiplication / division and addition / subtraction) Introduce counting in tenths during Unit 9 Multiply by 10 and 100 recognising the importance of place value Doubles & halves <p>Data:</p> <ul style="list-style-type: none"> Read scales in steps of 2, 3, 4, 5 and 10 <p>Shape and measure:</p> <ul style="list-style-type: none"> Identify right angles and that two right angles make a half turn Calculate the perimeter of simple 2-D shapes <p>Time:</p> <ul style="list-style-type: none"> Tell the time to the nearest minute Tell the time from an analogue clock using Roman numbers I to XII



Additional concepts and activities for Year 3 Maths Meetings

Autumn	Detail
	<p>Calendar maths</p> <ul style="list-style-type: none"> Discuss using vocabulary: century, calendar and leap year Days of the week <ul style="list-style-type: none"> Today is, yesterday was, tomorrow will be Days of the Week song (Adams family tune) https://www.youtube.com/watch?v=HqQnZZJWsY Months of the year <ul style="list-style-type: none"> This month is, last month was, next month will be Months of the Year song (found on YouTube) http://www.youtube.com/watch?v=5enDRrWYXaw Time, date and year Ordering the months of the year Weather <ul style="list-style-type: none"> Collate and compile weather data using a bar chart Measure and read the temperature in degrees Celsius Record the daily temperature using a bar chart <p>Number</p> <ul style="list-style-type: none"> Multiplication tables of 2, 3, 4, 5, 6 and 10 and related division facts Patterns of numbers within 100 <ul style="list-style-type: none"> 'Pass the teddy' counting game – the teddy is passed around the class with each child saying 2, 3, 5 or 10 more or less than the previous number Use a hundred square to show patterns within 100 100 square puzzle – show one part of the hundred square with only 2 or 3 numbers showing. Fill in the remaining numbers. Say cardinal numbers' names in order within 10 000 Estimate a set of objects within 100 <ul style="list-style-type: none"> Use jars of marbles, pencils, counters, etc. for estimation Pictorial estimation – show a picture of 50+ objects, estimate and then count in groups of 3, 4, etc. Order numbers within 1000 on a number line (vertical and horizontal) Compare numbers within 1000 using < and > signs Place value of digits in numbers within 1000 <ul style="list-style-type: none"> Number of the day or week – count on and back in tens to and from the number; how many tens and ones?; reverse the digits – what is the number now? Guess my number: it is odd, it has 6 in the thousands column, zero hundreds, it has a digit total of 9, etc. Bar model representations for addition and subtraction Bar model representations for multiplication and division <p>Data handling</p> <ul style="list-style-type: none"> Solve problems using pictograms, bar charts, tallies and tables Represent data using pictograms, bar charts and tallies. Understand and use simple scales in pictograms and bar charts



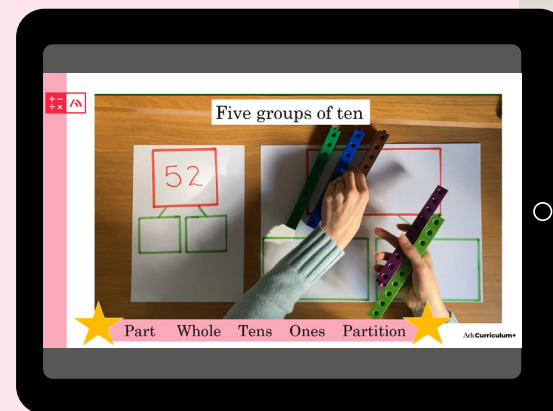
SMART GRADE

Get high-quality, termly standardised assessments that are linked to our curriculum, all while benefitting from the analytics power of Smartgrade. We have partnered with Smartgrade to standardise assessments.

Why use Mathematics Mastery + Smartgrade?

- Your mathematics summative assessment will be curriculum-linked.
- Assessments include content from prior terms, giving you a truer understanding of your pupils' accumulated knowledge.
- Benchmark your performance against other schools at the question, topic and overall grade level.
- When compared to purchasing commercially available assessments, you will save significantly.

[Book a demo](#)



Our **Ready to Progress Interventions** programme includes over 140 pupil-facing videos and an activity bank. Ideal for use by TAs to target specific areas of the curriculum where additional support may be needed.





Limited subsidised places available

The Department for Education is funding a scale-up of the programme via the Education Endowment Foundation. This means we can offer our Mathematics Mastery Primary Key Stage 1 Tailored programme for £1110* (usual price £5550).

Our partnerships team will be happy to talk you through the programme.

To book a demo, or sign up for a free trial, contact us on:

E: partnerships@arkcurriculumplus.org.uk

T: 020 3116 6363

Or book a call online at

www.arkcurriculumplus.org.uk/book-a-demo

“The programme makes a huge difference to my lessons and the pupils’ learning, particularly in the pace, language and level of questioning displayed by the children.”

**Kirsty Williams | Year 1 class teacher
Ark Dickens Primary Academy**

Pricing

We are a non-profit organisation. The schools that we work with are charged a financial contribution which goes towards delivering and developing the programmes.

www.arkcurriculumplus.org.uk/join-us

*This subsidised price is only available to state-funded schools in England who sign up for two years. Places are limited.



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