Mathematics Mastery

Welcome to the primary programme

2017-18 cohort

Our vision

For every child to enjoy and succeed in mathematics, regardless of background.

Our mission

To transform mathematics education in the UK. We work in partnership to empower and equip schools to deliver world-class mathematics teaching.

Mathematics Mastery

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Inside this booklet


Grovebrook School

Welcome to the Mathematics Mastery partnership

We are delighted to welcome you onto the Mathematics Mastery primary programme 2017-18.

You are joining a growing partnership of schools across the country, all of whom share our mission to transform mathematics education in the UK.

This booklet provides further information on what you can expect from the programme, as well as more detail on your role. We will be here to support you every step of the way as you champion and lead the Mathematics Mastery approach in your school.

All content included here will be covered in detail during your induction training. However, digesting it in advance will give you a useful headstart and enhance your training experience.

We really look forward to working with you over the next year and beyond. Our aim is to ensure our programme meets the needs of you, your team and your pupils – so every child can enjoy and succeed in maths.

We look forward to meeting you.

Best wishes,

Helen Williams

Director of Primary Education

Our approach

Mathematics Mastery is a non-profit professional development programme and curriculum framework for schools.

We aim to improve pupils' understanding, enjoyment and attainment in mathematics.

The programme is designed and developed by a team of educators, based on research and internationally recognised practice.

By September 2017, the programme will be operating in around 450 schools across the UK.

How the programme works

Mathematics Mastery works in partnership with you to embed a mastery approach to mathematics teaching within your school.

We have developed the training, structure, and guidance needed to enhance teachers' subject knowledge, confidence and practice.

The Mathematics Mastery programme provides:

- Development training
- A mastery curriculum
- Classroom resources
- Assessment tools
- Collaborative CPD
- Specialist support

We know every teacher and classroom is different. The programme is designed to be **comprehensive yet flexible** to accommodate the varying needs and expertise of your staff.

This means both new and experienced teachers can get the best out of what we offer.

Mathematics Mastery is a **long-term approach** to transforming the teaching and learning of maths – it is not intended as a quick fix.

The programme encourages learning that builds to make a lasting impact. Pupils deepen their **conceptual understanding of mathematics** over time, and develop confidence, enjoyment and enthusiasm for the subject.

Our key principles

Everything we do – from designing and developing materials to delivering training – is underpinned by **six key principles**. These principles are fundamental to the programme and the mastery approach.

Language

The way pupils **speak and write** about mathematics transforms their learning. We use a carefully sequenced, structured approach to introduce and reinforce **mathematical vocabulary**.

We always ask pupils to explain the mathematics in full sentences (not just what the answer is, but how they know it's the right answer). This is key to building mathematical language and **reasoning skills**.

Growth mindset

In demonstrating your **high expectations for every child,** pupils are able to apply this to their own mindset and attitude to learning. A growth mindset helps pupils develop resilience and confidence. It also enables them to see the value in learning from mistakes.

Success for all

We believe **no child should be left behind,** regardless of background. Teachers should expect **every child to succeed** and emphasise that progress is made through engagement and effort.

Concrete Pictorial Abstract

Objects, pictures, words, numbers and symbols are everywhere. Our approach incorporates all of these to help pupils explore and **demonstrate mathematical ideas**, enrich their learning experience and deepen understanding.

Use of concrete apparatus, such as **beadstrings, Dienes blocks and Cuisenaire rods**, are essential apparatus throughout the whole primary school.

We encourage children to **relate the concrete to pictorial representations as well as understanding the abstract concepts** – the three elements are seen as interchangeable.

Problem solving

Pupils are encouraged to **identify, understand and apply relevant mathematical principles** and make connections between different ideas. This builds the skills needed to tackle new problems, rather than simply repeating routines without grasping the principles.

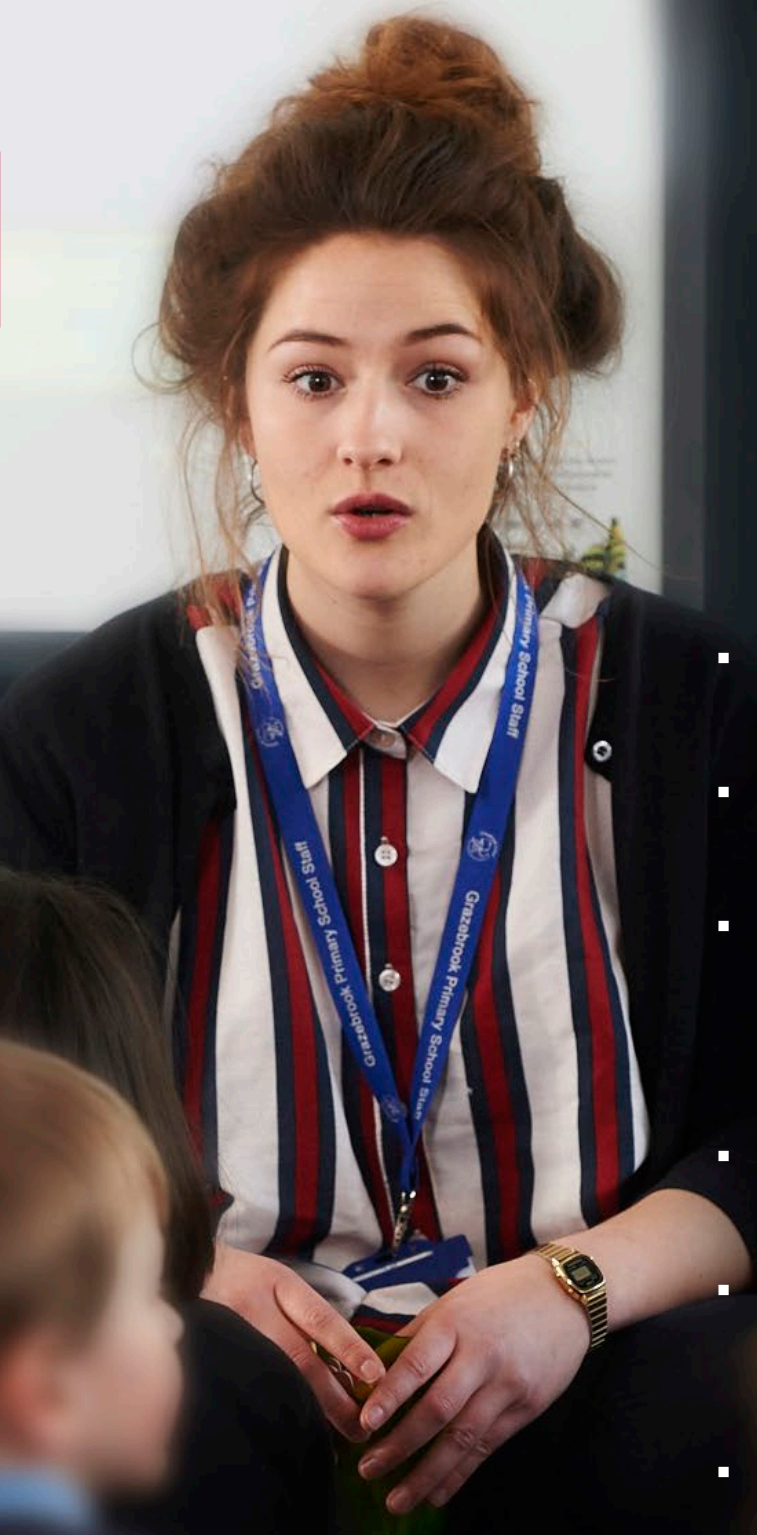
Deeper understanding

All learners benefit from deepening their conceptual understanding of mathematics, regardless of whether they've previously struggled or excelled. Pupils must be given time to fully understand, explore and apply ideas - rather than simply accelerate through new topics. This approach **enables learners to truly grasp a concept**, and the challenge comes from investigating it in new, alternative and more complex ways.

The role of the Mathematics Mastery School Lead

The Mathematics Mastery School Lead (MMSL) is **the driver and champion of the programme** within your school. The MMSL is also the key point of contact between Mathematics Mastery and your school staff.

We will work with you to ensure the programme is **successfully launched and implemented**. This will involve you keeping up to date with the latest programme developments, and ensuring your colleagues are accessing training, curriculum and CPD tools.



MMSL key responsibilities

- **Organise** and attend training, both in-school and external
- **Ensure** teachers new to the school or programme receive induction training
- **Drive** the success of the programme through conducting lesson observations, modelling best practice and giving feedback
- **Facilitate collaboration** and co-planning of lessons between teachers
- **Ensure** Mathematics Mastery lessons and Maths Meetings are timetabled and taking place
- **Attend** termly National Leadership Days
- **Facilitate** Autumn and Spring Term visits from your Development Lead
- **Keep** the leadership team updated on progress of the programme
- **Oversee** assessments and data collection

What's included?

"It was great that training allowed me time to talk with my staff about what we need to do to make the programme work while sharing ideas with teachers from other schools."

Lisa Platts, MMSL
St Boniface RC Primary School, London

Induction training

Your Mathematics Mastery journey begins with a series of **in-depth induction training sessions**, taking place in the Summer Term between May-July.

This training ensures you and your team are **equipped with the knowledge and skills** to hit the ground running with your programme launch.

It's also a great opportunity to meet our team and get to know other teachers who are in the same position as you. **Collaboration between teachers** is a key element of the programme and this will continue throughout your Mathematics Mastery journey.

What you can expect:

Induction training sessions

Leading whole school transformation in maths

Duration: One full day

Attendees: MMSLs and Headteachers

- Programme design, structure and rationale
- Strategic implementation of the programme
- How to overcome challenges and keep up momentum
- Expectations and commitments to make it work

Classroom teacher training

Duration: One full day

Attendees: MMSLs and Reception/Year 1 teachers*

- Bringing the key principles to life in the classroom
- Programme practicalities, planning and using our materials
- How to differentiate through depth

*The MMSL should only join teachers on **one** classroom teacher session, but **not all**.

"The trainers were dynamic and knowledgeable. They provided us with plenty of opportunities to share ideas"

Teresa Wikins, Reception teacher
Manor Oak Primary School

Don’t forget

In your launch year, you’re entitled to **an unlimited number of training places**.

We strongly encourage you to take advantage of this and ensure **every Reception and Year 1 teacher is booked** to attend.

If you have new staff who are not joining the school until the September, there will be **additional induction sessions in the new term** to accommodate this (maximum two teachers per school).

Most of our training takes place in **London** but we also hold sessions in **Sheffield, St Helens, Birmingham, Bristol and Suffolk**.

Next steps:

- Along with this booklet, you received an email which included details of how to log on to our system and book your training.
- **The MMSL is required to book their own training, plus the training for the headteacher and classroom teachers as well.**
- After attending training, there is an expectation that **the MMSL or headteacher will deliver an introductory presentation for staff and governors.** This is designed to ensure everyone is up to speed on the programme and broader approach. **Slides are provided and more details will be given at training**.

The Mathematics Mastery curriculum

The Mathematics Mastery curriculum is developed by our team of specialists and is **fully aligned to the 2014 National Curriculum**. This is overseen by our Executive Director, Dr Helen Drury, who was a member of the National Curriculum drafting team.

The Mathematics Mastery curriculum is **refreshed each year** in response to developments, feedback and research.

Running from Reception to Year 6, our curriculum **focuses on depth and encourages learning that builds**.

Key mathematical concepts are **taught, applied and connected to other areas of learning throughout the year** and beyond. This approach deepens understanding and consolidates knowledge.

How is the curriculum structured?

The Mathematics Mastery curriculum is split up into six half term blocks. **All curriculum content is divided into units**, with each unit lasting from one to three weeks.

As half-terms vary in length between schools, you may need to move some topics slightly to ensure the curriculum fits into the school year. **A planning document will be provided** to ensure you don't get too far ahead or fall too far behind.

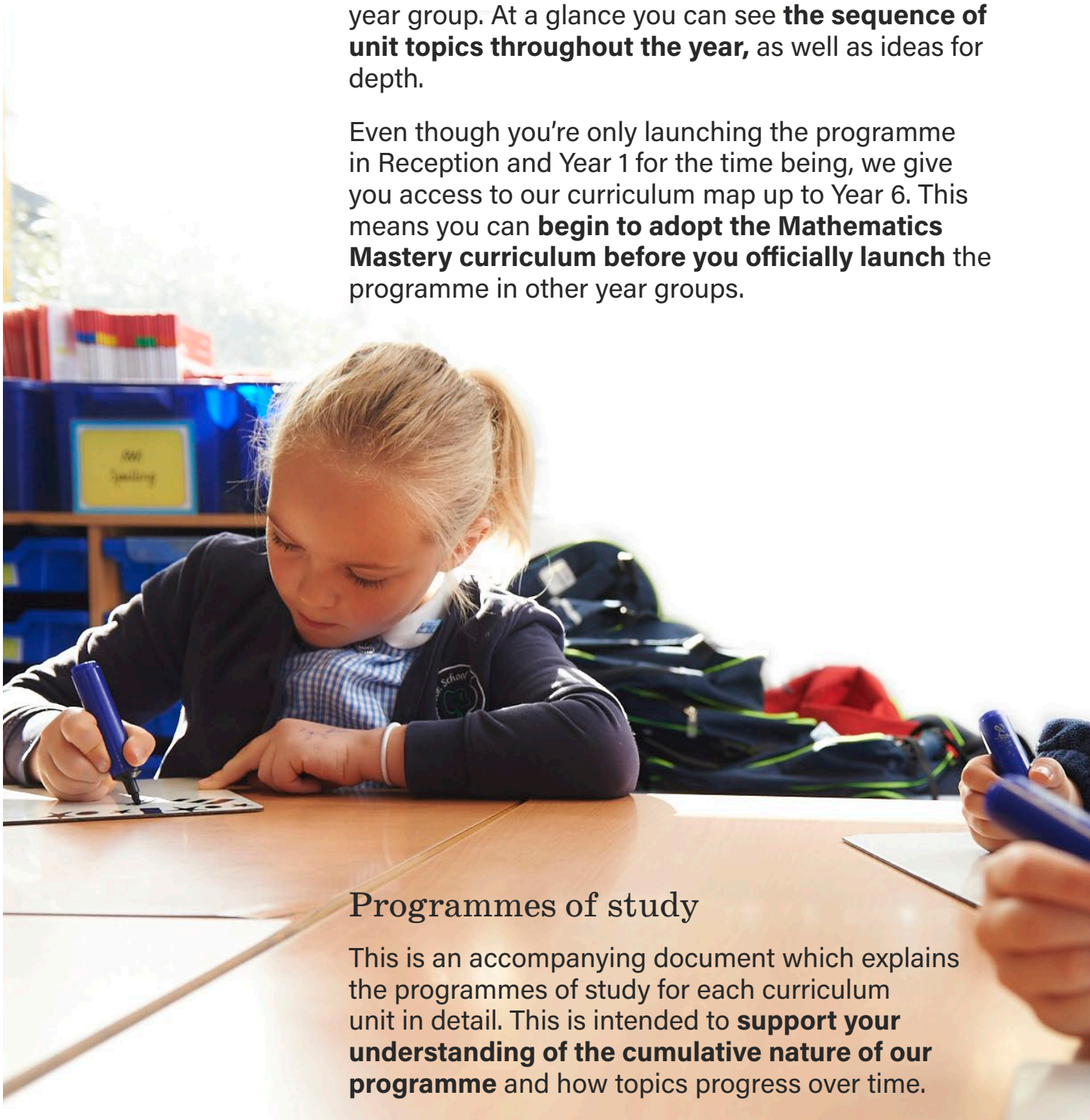
Following the order of units is vital. **The sequence of topics has been carefully designed to build on one another** and deepen pupils' understanding of key concepts. Swapping them around will result in key learning being missed.

What you can expect:

Curriculum map

This is an overview of the curriculum content for each year group. At a glance you can see **the sequence of unit topics throughout the year,** as well as ideas for depth.

Even though you're only launching the programme in Reception and Year 1 for the time being, we give you access to our curriculum map up to Year 6. This means you can **begin to adopt the Mathematics Mastery curriculum before you officially launch** the programme in other year groups.



Programmes of study

This is an accompanying document which explains the programmes of study for each curriculum unit in detail. This is intended to **support your understanding of the cumulative nature of our programme** and how topics progress over time.

Again, **we give you access to the Programmes of Study up to Year 6** – so you are free to use these beyond Reception and Year 1 if you choose to.

The Mathematics Mastery lesson

As a Mathematics Mastery school, you will gain access to **a vast array of materials to support you** in your delivery of the programme.

Our resources are designed to exemplify our approach and **support your professional development**.

They also **save you time on planning, researching and producing lesson content**. However, they are not intended to restrict you.

All our lesson guides and task sheets are adaptable and **we strongly encourage you to tailor the resources** to ensure they best meet the needs of you and your pupils.

"Since starting Mathematics Mastery the children's engagement with maths has been clearly visible. They love the different parts of the lessons and maths has become a lesson children look forward to."

Nich Starling, Assistant Head and MMSL
Mile Cross School, Norwich

What does a Mathematics Mastery lesson look like?

"I am always saying; 'I wish I was taught Maths like this at school.' The children in my class love Maths! The six-part lessons are brilliant."

Ruth Leavers, Year 1 teacher and MMSL
Woodcote Primary School, Coulsdon

Mathematics Mastery lessons are intended to be **interactive and fun, with an emphasis on pace** – ensuring no time is wasted.

A distinct aspect of the programme is the **six-part lesson structure**. This keeps the lesson moving, gives flow and allows more opportunities to teach creatively, provide feedback and assess learning.

Each of the six segments are equally important and **timings can be adapted** depending on the topic and the needs of your pupils.

The Mathematics Mastery six-part lesson includes:

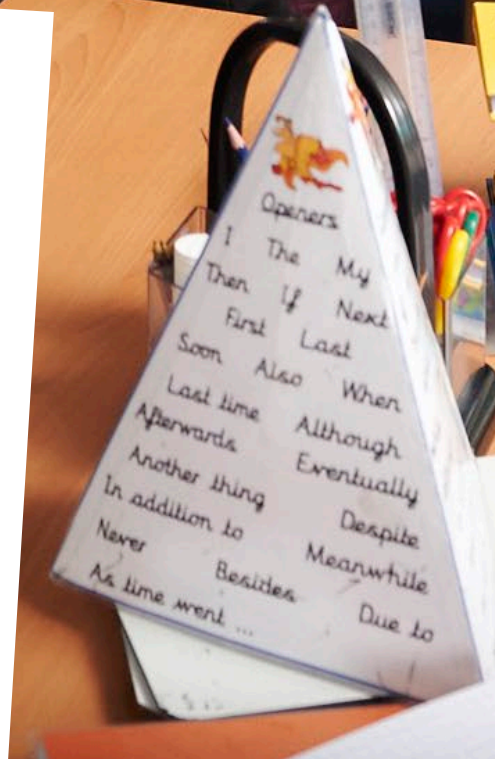
Do Now	This is a quick task to introduce the maths lesson. All pupils should be able to access the activity without any teacher input and we recommend this segment lasts no longer than five minutes.
New Learning	This segment introduces the main mathematical concepts for the day's lesson.
Talk Task	This segment focuses on practising the new learning by talking about the maths using key vocabulary.
Develop Learning	This segment builds on the New Learning content and helps pupils deepen their understanding of the concepts.
Independent Task	This segment enables pupils to practise their learning independently.
Plenary	The closing segment enables you to recap on the lesson, checking understanding and celebrating success.

Lesson transitions

Another key aspect of the Mathematics Mastery lesson is the **transition activities** which take place between each lesson segment.

A transition might take place as pupils move from the carpet to tables, for example. These activities mean the **pace is kept brisk and no time is wasted.**

Transition activities include **chanting, songs and rhymes** in Reception and Key Stage 1. In older year groups, transitions are a great opportunity to **practise key learning**, such as counting on and back in tens or a hundreds from a given number.



Maths Meetings

In addition to the mathematics lesson, we have developed Maths Meetings – an additional daily 10-15 minute session. This core ascept of the programme is used to **consolidate key areas** of mathematics with your class.

Maths Meetings provide an opportunity to **teach and revise mathematical general knowledge**, such as days of the week and months of the year (which may not explicitly be covered during the maths lesson). This means pupils are **practising concepts and skills on a regular basis.**

Maths Meetings should be a positive part of your day and **pupils should be fully engaged**. Singing and chanting forms an integral part of the Maths Meetings, and we recommend creating a Maths Meeting board or flipchart as a visual structure for pupils to become familiar with.

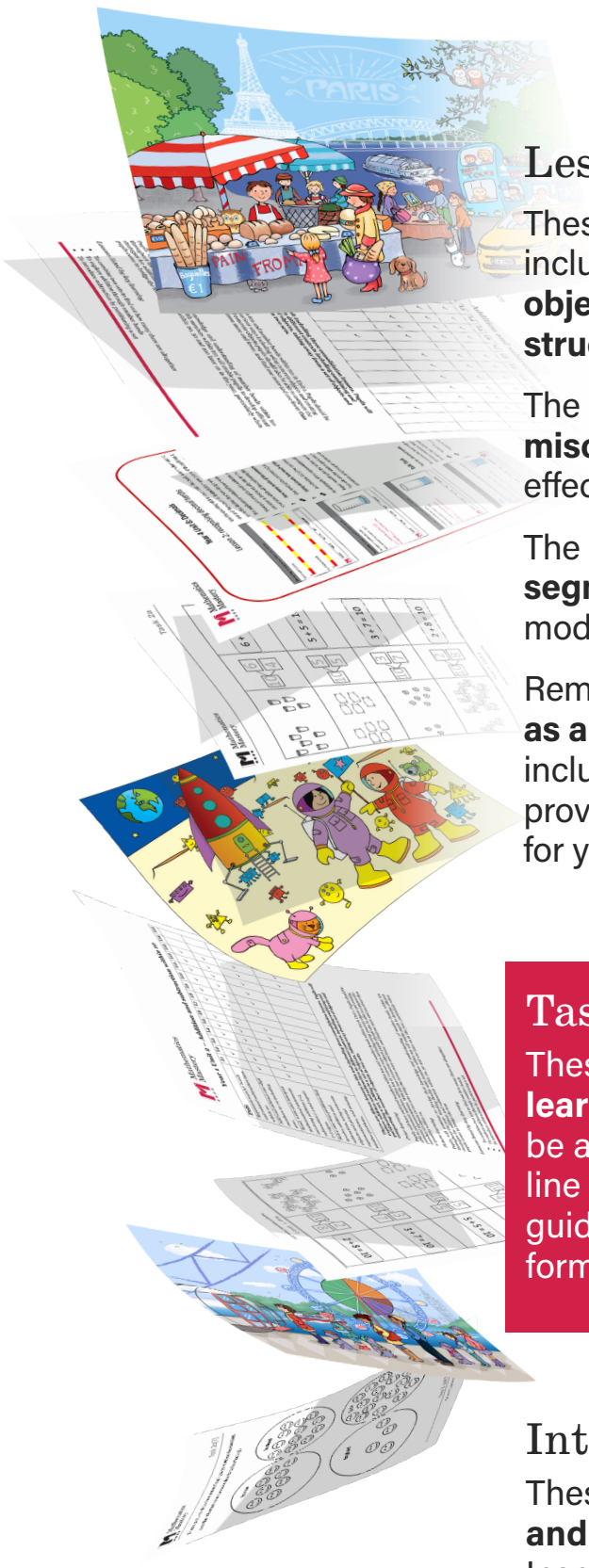
Calendar maths and place value should be included in every Maths Meeting. The rest of the meeting should change regularly according to the topics you wish to revise and consolidate.

We provide **detailed Maths Meeting guidance** for Reception up to Year 6, enabling all year groups to benefit.

Next steps:

- You will need to meet with your Senior Leadership Team to discuss the most appropriate way to **timetable Maths Meetings,** as this is often the most challenging aspect.
- Advice will be provided in training on how to manage your timetable.

Classroom resources



Lesson guides

These are provided for 30 weeks of the year and include an **overview of each lesson's learning objective, content, key vocabulary, sentence structures, suggested resources, and outcomes**.

The lesson guides also highlight **potential misconceptions**, enabling you to scaffold the lesson effectively.

The l**esson guides provide detail on each of segment of the six-part lesson**, with suggestions for modelling concepts and working at greater depth.

Remember, **you do not have to follow these guides as a script** and suggestions for adaptations are included. **You are free to edit these guides** and we provide them in Publisher format to make this easy for you.

Task sheets

These are activities **designed to support pupils' learning during a lessons.** Task sheets should be adapted to meet the needs of your children, in line with your school policy. Along with the lesson guides, task sheets are provided in Publisher format for easy editing.

Interactive white board flipcharts

These are provided to **support your lesson delivery and save you time.** They are available in Activ Inspire and SMART format

Maths Meeting guidance

We provide **a range of videos and guidelines** on what to include in Maths Meetings and when, to support your delivery of this aspect of the curriculum.

Interventions

We provide **a range of suggestions for enabling pupils to keep up rather than catch-up**. For pupils who require further support in addition to their maths lessons and Maths Meetings, these keep-up materials can be used to address specific gaps in learning.

These tasks are designed to be implemented for **5-10 minutes daily** and can be delivered by a teacher or teaching assistant. The sessions can be completed throughout the year in small groups or one-to-one depending on the needs of your pupils.

Big Pictures

These are fun, vivid images of fairy tales, nursery rhymes and places – specially designed to be used and explored in a Mathematics Mastery lesson. Teachers can use these images to **encourage mathematical discussion, demonstrate concepts and link ideas** in different ways. 'How many... can you see?', 'What if we doubled...?', 'What shapes can you see..?'

Assessment tools

Mathematics Mastery provides a suite of **optional assessment tools for Years 1-6.** In addition to great formative assessment in lessons, there are two strands to our assessment approach:

- A framework of National Curriculum-aligned 'Key Constructs', to make clear the age-expected standard for each academic year.
- Interim assessments for each year group: end of unit assessments and pre and post half-termly assessments.

Unit tutorial videos

We produce video tutorials for each unit of the curriculum, to support you as you prepare your lessons. These **short videos explain the key learning for the unit** and also highlight key representations of mathematical ideas and language you'll be introducing or applying in that unit.

*"I watch the **videos for every unit** as I find them interesting and it helps me to break down the complex maths vocabulary to the children."*

Lucia Freeman, Deputy Head and MMSL
St Mary's Hampton CE Primary

Progression in calculation

We provide **a detailed document outlining the different calculation strategies** to be taught and applied in Years 1 to 6, in line with the National Curriculum.

Our approach to calculation strategies echoes the key principles of our approach. **Children shouldn't simply rote learn procedures** – instead we encourage them to build their **understanding and flexibility** through exposure to a range of techniques and representations.

We particularly **encourage the use of concrete materials and pictorial representations** to support this.

To support your understanding of our Progressions in Calculation document, we also provide a range of **video tutorials** which model specific calculation strategies.

How do I access materials?

All programme content sits on a password-protected area of the Mathematics Mastery website called the Toolkit. **The Toolkit is our online programme hub, enabling you to access the entire programme quickly and conveniently.**

In your launch year, every Reception and Year 1 teacher will require an **individual username and password** to access the Toolkit.

It is the MMSL's responsibility to manage Toolkit accounts for all the teachers who require access to the programme. This **includes adding and removing teachers following staff changes, and booking and approving training booking** for all teachers in your school.

Next steps:

- Look out for an email from us with details of how to log on to the Toolkit and access content. The MMSL will also receive step-by-step guidance on how to manage Toolkit accounts.
- **We recommend you carry out an audit of resources** you already have and arrange to order any additional manipulatives you may need. A list of recommended resources can be found on the toolkit

Specialist support

Every Mathematics Mastery school is **assigned a designated Development Lead** who will support you as you launch the programme and be your ongoing point of contact.

All of our Development Leads are **experienced classroom teachers or senior leaders**, and have been carefully selected and trained as Mathematics Mastery specialists.

The majority of our Development Leads are full-time members of our central team. However, we do also have several part-time Development Leads who also work in schools.

"It was really useful to get feedback so quickly and be given guidance on differentiation and challenge. Our DL also gave lots of useful information which will make navigating the website a lot easier."

Denise Coady, Year 1 teacher and MMSL
Chestnut Park Primary School

Your Development Lead will:

- Deliver training, events and workshops
- Arrange and lead school visits
- Provide ongoing support, coaching, guidance and challenge to ensure effective delivery of the programme (including support via email and phone as needed).

School visits

As part of the programme you will receive **two in-school visits** from your Development Lead; one visit in the Autumn Term and a second in the Spring Term.

In your launch year, school **visits are designed to support you** as you implement the programme for the first time. This will involve **observing lessons and giving feedback, supporting you in action-planning for the term ahead and helping you work through any challenges** you've faced so far.

School visits are supportive and non-judgmental.

Remember we are not there to inspect you.

It is a collaborative visit which is very much driven by your needs. We are there to provide support and guidance.

Suggested timetable for school visits

All visits may be adapted to suit your school's timetable and can also take place in the afternoon

Autumn term

9.00 – 9.30:
Development Lead and Headteacher meet to discuss progress on the programme so far.

9.30 – 10.30:
Headteacher and Development Lead observe Year 1 lesson taught (or co-taughtv) by MMSL.

10.30 – 10.45:
Development Lead and Headteacher meet briefly to discuss lesson and agree action points arising from the observation.

10.45 – 11.45:
Headteacher, Development Lead and MMSL meet to discuss lesson feedback, plan any actions for further development prior to the Spring Term visit.

Spring term

9.00 – 9.30:
Development Lead, MMSL and Headteacher meet to discuss the impact of the programme so far and any issues arising.

9.30 – 10.30:
Development Lead and MMSL observe a Year 1 lesson (and potentially a Reception class or an additional Year 1 lesson, depending on school size and timetable).

10.30 – 10.45:
Development Lead and MMSL meet briefly to discuss lesson and agree feedback.

10.45 – 11.45:
Development Lead and MMSL meet to follow up on actions from previous school visit, and provide support with planning with or resources.

Next steps:

- In early September, look out for an email from your Development Lead where they'll introduce themselves and arrange your school visits.
- **One to two weeks before each school visit, you and your team will be emailed a pre-visit questionnaire to complete.** The responses will be used to inform the development visit (and are also used to track progress and impact) so it's vital these are completed.

Collaborative CPD

Collaborative CPD events are a core element of the Mathematics Mastery programme and a great opportunity to share experience and best practice with teachers from other schools.

What you can expect:

National Leadership Days (NLDs)

These events are held termly and are **attended by the MMSLs** from each Mathematics Mastery school.

NLDs bring all our primary schools together, along with the Mathematics Mastery team, **to engage in knowledge sharing and programme developments.** They also provide a vital opportunity to engage in some mathematics.

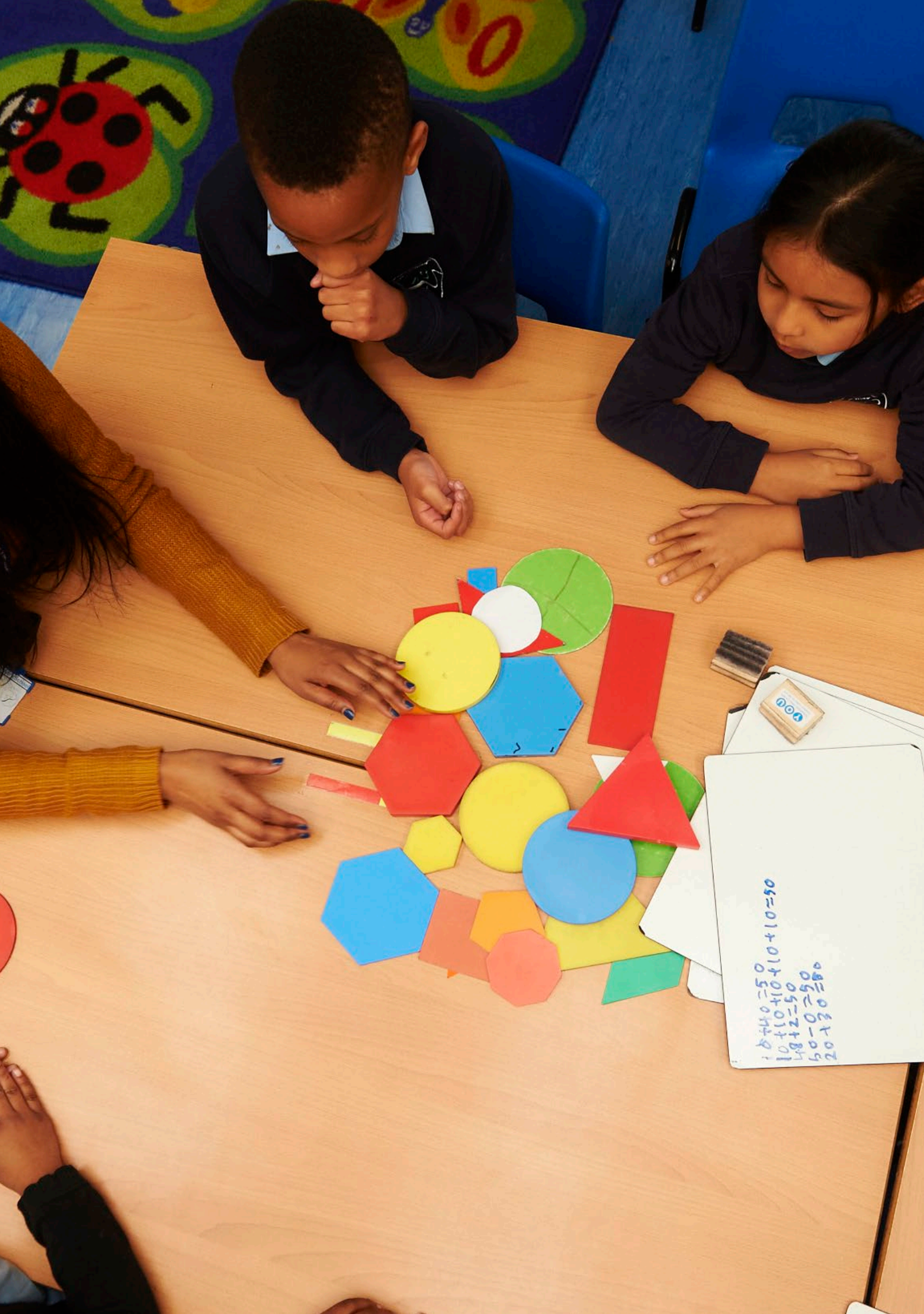
Collaborative workshops

In your launch year, **we facilitate termly collaborative workshops for groups of local schools.** These practical sessions are designed to be school-led, hosted by a different school each time.

Your Development Lead will assist with the collaboration and discussion within local clusters of schools, based on the needs of the schools involved. These sessions are a great opportunity to learn from each other and share valuable experiences.

Next steps:

- As a partner school you'll begin receiving our newsletter – entitled 'HypoteNEWS'. September's issue will include key dates, including the Autumn Term's National Leadership Day. Look out for these emails throughout the year and ensure you book on.
- You will also be able to check dates and book events directly via the Toolkit once you've received your login details.



Your launch year

Preparing for programme launch

SUMMER TERM 2017

April

Induction Training booking opens

MMSLs are given access to the Toolkit and are able to view and book training events (pg 14).

May

Headteacher & MMSL training takes place

Full Toolkit access given

Once teachers have attended induction training they will be given full access to all our classroom resources via their MMSL (pg 26).

June

Classroom teacher training takes place

July

Programme launch year begins

AUTUMN TERM 2017

September

Classroom teacher induction training (repeat)

Limited training available for teachers who missed our summer sessions (pg 15).

October

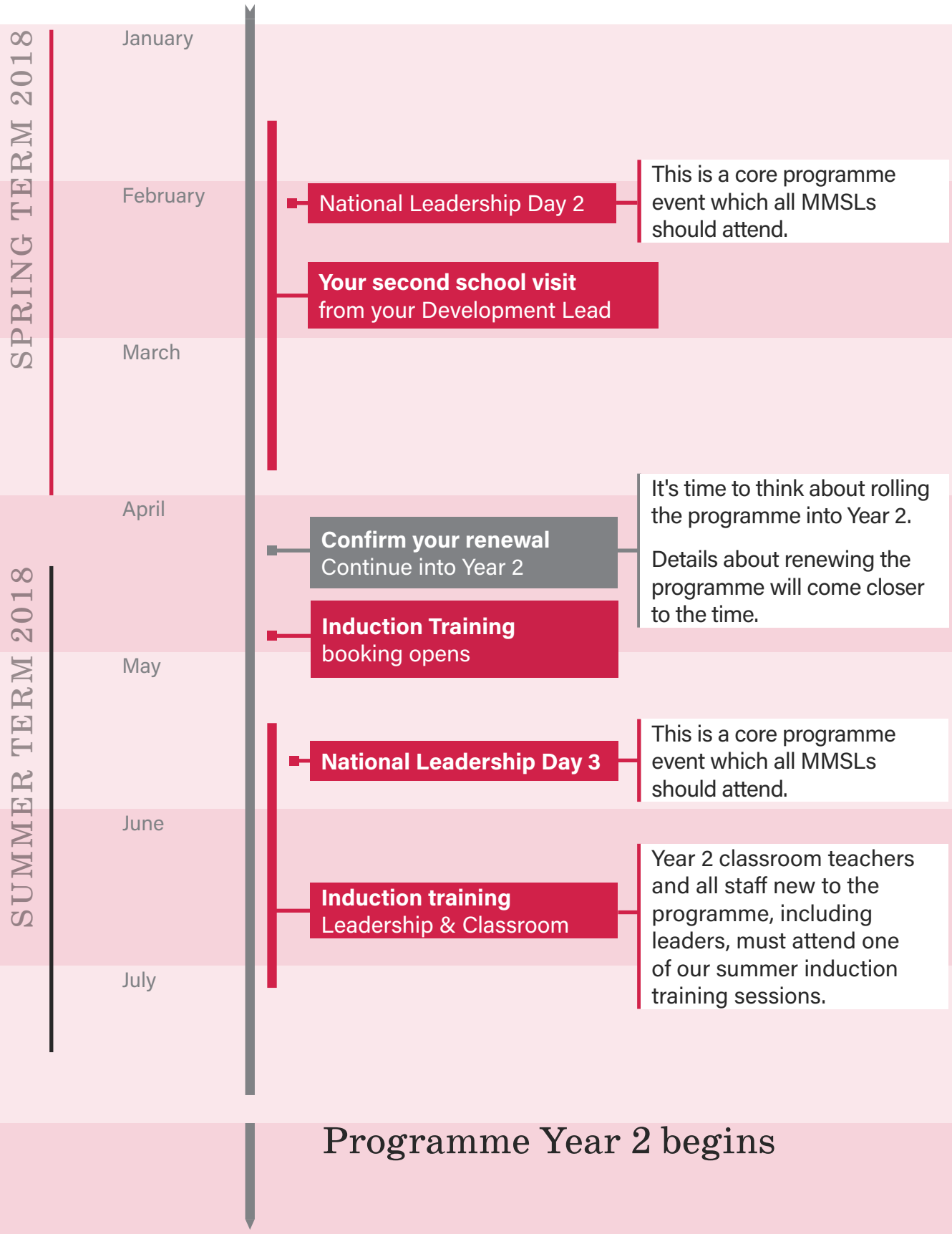
Your first school visit from your Development Lead

National Leadership Day 1

This is a core programme event which all MMSLs should attend (pg 30).

November

December

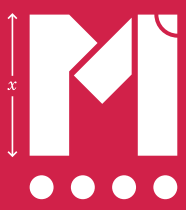

SPRING TERM 2018
SUMMER TERM 2018
January
February
March
April
May
June
July
National Leadership Day 2
This is a core programme event which all MMSLs should attend.
Your second school visit
from your Development Lead
Confirm your renewal
Continue into Year 2
It's time to think about rolling the programme into Year 2.
Details about renewing the programme will come closer to the time.
Induction Training
booking opens
National Leadership Day 3
This is a core programme event which all MMSLs should attend.
Induction training
Leadership & Classroom
Year 2 classroom teachers and all staff new to the programme, including leaders, must attend one of our summer induction training sessions.
Programme Year 2 begins

FAQs

I don't understand something about the **programme** – who can I speak to?	Before your induction training, please contact info@mathematicsmastery.org and we'll pass on your enquiry to a member of our primary team. Once you've had your training and been assigned a **Development Lead**, they should be your first point of contact for any programme queries.
I've got a technical query about the **Toolkit** – who can I speak to?	If you're having trouble finding a specific piece of content, we advise you to speak to your **Development Lead.** If you're experiencing an issue with the website itself, please contact info@mathematicsmastery.org and a member of the team will help you. If your enquiry is urgent it's always best to call us on 020 3096 7987.
We've had some **changes of staff**, what should I do?	It's important you keep us updated on staff changes, particularly if the MMSL or headteacher is leaving. Please email info@mathematicsmastery.org so we can update our system. In addition, you can add and remove teachers yourself on the Toolkit.
Another school would like to come and see the programme in action, is that OK?	Absolutely – we're always thrilled to hear about collaboration with local schools. Do let us know if you're arranging a visit like this so we can follow up with the school as needed.
What happens at the end of our launch year?	In the Spring Term we will publish details of our renewal programme and we will discuss with you whether you plan to stay on into another year. We are extremely proud that over 90% of our schools renew each year.

Can I **share Mathematics Mastery materials** on our website or with teachers from other schools?	We kindly ask that you don't share Mathematics Mastery materials outside of your school. Not only is this an infringement on copyright, but importantly our materials are designed to be used in conjunction with our training and CPD. We share a limited number of free resources on our main website which you can direct other schools to if needed.
We're really proud of how the programme is going in our school and we'd like to **share our story** – who can I speak to?	We're always keen to publish your stories on our website as this is a vital way of demonstrating impact. Please contact us on press@mathematicsmastery.org to arrange a conversation.
Another school is **interested in joining** the programme – what should they do?	The best thing to do is encourage them to review our website and contact applications@mathematicsmastery.org to discuss joining the programme.

For any further enquiries, please don't hesitate to email us on info@mathematicsmastery.org and a member of our team will be happy to help.



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