

The Rationale

At Longshaw, we believe that the ability to quickly retrieve addition and subtraction facts is vital to ensuring fluency for later mathematics. Our children become fluent in this fundamental, through varied and frequent practice, developing conceptual understanding and the ability to recall and apply this knowledge rapidly and accurately. The ability to recall addition and subtraction facts, frees up working memory and allows children to focus on other tasks such as problem solving and other examples of applying conditional knowledge.

“Quick retrieval of number facts is important for success in mathematics. It is likely that pupils who have problems retrieving addition, subtraction, multiplication, and division facts, including number bonds and multiples, will have difficulty understanding and using mathematical concepts they encounter later on in their studies.”

EEF Guidance Report, 2017

How we teach addition and subtraction

In our maths curriculum, addition and subtraction is explicitly taught, using a range of methods and representations. In addition, children receive regular retrieval opportunities, including low stakes testing.

Low-stakes tests are timed to promote recall and prevent children relying on inefficient methods. These are designed to constantly review previously learned facts, to build retrieval fluency and to prevent children forgetting these from their long-term memories.

Further reading:

EEF Guidance Report:

[https://educationendowmentfoundation.org.uk/public/files/Publications/Maths/EEF Maths EY KS1 Guidance Report.pdf](https://educationendowmentfoundation.org.uk/public/files/Publications/Maths/EEF_Maths_EY_KS1_Guidance_Report.pdf)

DfE Curriculum Guidance: <https://www.gov.uk/government/publications/teaching-mathematics-in-primary-schools>

Maths National Curriculum:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335158/PRIMARY_national_curriculum - Mathematics 220714.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335158/PRIMARY_national_curriculum_-_Mathematics_220714.pdf)

Ofsted Research Review: <https://www.gov.uk/government/publications/research-review-series-mathematics/research-review-series-mathematics>

Guidance and Expectations:

- All children to complete weekly a speed grid aligned to their curriculum, as part of retrieval practice and to measure progress
- Children to mark and correct (using green pen) before taking test home to learn from
- Weekly scores are recorded and updated on the school's tracking system
- Year 1 to begin from 5th week of school term, continuing until the end of the school year
- Year 2 to begin from 1st week of school term, continuing until Spring 1
- Weekly homework to include practice on Numbots – with certificates provided each Friday
- 1 x 15 min discrete teaching and practice

Yearly overview for discrete teaching and practice

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Addition	Addition	Addition	Subtraction	Subtraction	Subtraction
Year 2	Addition	Subtraction	Add/sub	2x	10x	5x

Example of termly unit progression

Session 1	Explore 1 more and 1 less than a given number – begin within 10 and build with the children. Start by orally rehearsing counting, modelling 'before' 'after' 'more' 'less' and begin to add questioning, with teacher modelling the expectations.
Session 2	Use concrete resources – e.g. numicon or 10 grids with counters to rehearse number bonds to 10. Children to quiz their partner, showing them one part and the partner needing to quickly retrieve the other in order to make 10. Challenge pupils by moving to pictorial or abstract once ready.
Session 3	With the children, systematically build together the facts that you already know. Explicitly explore the commutative law using concrete resources – 'If I have 3 counters and add 1 counter, I have 4 counters altogether. If I have 1 counter and I add 3 counters, I have 4 counters altogether.'
Session 4	Use electronic versions of flashcards. After the teacher reveals the pictorial representation, children write the sum onto whiteboards as quick as they can. Pairs use printed versions of the flashcards to coach their partner.
Session 5	Play Splat! Hit the Button, Numbots and other web-based games. Children compete against themselves to improve their scores and their times.
Session 6	Low-stakes test on the term's focus. Reflections and targets, children to mark the tests and take them home for further practice.

In teaching procedural and factual knowledge, ensure that students get to automaticity. Explain to students that automaticity with procedures and facts is important because it frees their minds to think about concepts... This requires some memorisation and ample practice.

Willingham 2009 p19