



Mathematics Policy



Mathematics Policy

Stonebridge Primary School

VISION FOR MATHEMATICS

At Stonebridge, every child deserves to be a confident, fluent, and resilient mathematician. We believe mathematics is not only a subject to be studied but a vital life skill essential for future success. Through the Maths Mastery approach with Ark Curriculum Plus, we ensure that pupils develop a deep, connected understanding of mathematical concepts and can confidently apply their knowledge in school, at home, and in the wider world. Our teachers are committed to delivering a consistent, research-informed curriculum that promotes reasoning, problem-solving, and fluency through the use of concrete, pictorial, and abstract representations. We provide high-quality professional development and resources to ensure teaching is engaging, inclusive, and ambitious for all learners. We value our partnership with parents and carers, supporting them to understand the methods we use so they can help their children at home and celebrate their progress. As a school community, we aim to inspire a positive attitude towards mathematics, fostering curiosity, perseverance, and enjoyment. Together—pupils, teachers, parents, and the wider community—we will ensure that every child leaves Stonebridge as a capable, confident, and enthusiastic mathematician, ready to use their skills for life.

INTRODUCTION

Purpose

The purpose of this policy is to outline our approach to the teaching and learning of Mathematics and the principles upon which our practice is based.

Aims

Pupils at Stonebridge will:

- Develop fluency with number facts, procedures, and strategies.
- Apply knowledge to solve problems in varied contexts.
- Reason mathematically and explain their thinking with clarity.
- Build confidence, resilience, and enjoyment of mathematics.
- Recognise the importance of mathematics in everyday life and future careers.

Subject-Specific Intent

We follow the mastery approach, delivered through Ark Curriculum Plus, characterised by:

- Small-step, carefully sequenced learning.
- Development of mathematical thinking and reasoning.
- Fluency and factual recall.

- Use of representations to expose mathematical structures.
- Ensuring all children can succeed, regardless of starting point.

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LEAP represents the curriculum principles that guide learning at our school:

- **Language-Rich** – We nurture confident communication by providing rich opportunities to talk, listen, and build vocabulary, enabling children to express ideas clearly and to a high standard.
- **Experiential** – We bring learning to life through hands-on experiences (trips, visits, art/design, and real-world exploration) that inspire curiosity and deepen understanding.
- **Ambitious** – We set the highest expectations for every learner, encouraging them to achieve their best and believe in their potential.
- **Purposeful** – We design learning that builds on prior knowledge, carefully addressing gaps to ensure meaningful, connected progress.

Together, these principles empower children to **LEAP forward** in their learning, grow, and fulfil their potential. The table below integrates LEAP with the **4 Dimensions of Depth** (Conceptual Understanding; Language & Communication; Mathematical Thinking; Problem Solving) that underpin Ark Curriculum Plus:

<p>Language-Rich</p> <ul style="list-style-type: none"> • Key vocabulary is explicitly explained using visual cues, rehearsed together as a class, and displayed at all times on working walls and Star Words. • Sentence stems are displayed, rehearsed, and embedded through regular whole-class practice. • Whole-class oral rehearsal supports precise mathematical talk and deepens conceptual understanding. • Talk Tasks are modelled by the teacher and rehearsed in mixed ability groups, 	<p>Experiential</p> <ul style="list-style-type: none"> • Linked to Conceptual Understanding: pupils explore mathematical ideas through concrete manipulatives and pictorial models before moving to abstract representations. • Maths is shown to be all around us — in money, time, measures, data, shape, and patterns in nature — and pupils are encouraged to make these real-world connections in every unit. • Teachers highlight how maths underpins everyday life (e.g., reading timetables, measuring ingredients in
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<p>providing further scaffold for children's language development.</p> <ul style="list-style-type: none"> • Maths Meetings include frequent oral rehearsal, enabling children to articulate and apply their mathematical knowledge fluently. 	<p>cooking, budgeting, or interpreting sports results), helping children see its purpose.</p> <ul style="list-style-type: none"> • Enrichment opportunities such as trips, visitors, and cross-curricular links (e.g., art, design, and science) demonstrate how mathematics is applied beyond the classroom. • Maths Meetings (3 × 15 minutes weekly) provide energetic retrieval and fluency practice in an engaging, whole-class format. • Pupils are encouraged to discuss their own prior experiences (e.g., shopping, travel, building, sport) to anchor new learning and make maths meaningful. • Lessons emphasise that mathematics is not memorisation but something to be <i>experienced, explored, and lived</i>.
<p>Ambitious</p> <ul style="list-style-type: none"> • At Stonebridge, we believe every child can succeed in mathematics, regardless of their starting point. • High expectations are set for all, with every pupil working towards the same objective in small, carefully sequenced steps. • Lessons are designed with depth, not speed, ensuring all children master core concepts before moving on. • Scaffolding (e.g., stem sentences, structured tasks, manipulatives) enables access for those who need it, while rich challenge tasks push pupils to reason, generalise, and apply their understanding in new contexts. • Ark Curriculum Plus structures ensure progression is carefully mapped, so learning builds cumulatively and gaps are addressed promptly through diagnostic assessment. • All pupils are encouraged to see themselves as mathematicians; exposure to STEM pathways and real-world applications raises aspirations and broadens horizons. • Enrichment and challenge are embedded so that pupils develop resilience, independence, and a belief 	<p>Purposeful</p> <ul style="list-style-type: none"> • We design learning that builds on what children already know, carefully addressing gaps to ensure meaningful and connected progress. • Ark Curriculum Plus provides a clear, consistent lesson structure (Do Now → New Learning → Talk Task/Let's Explore → Develop Learning → Independent Task → Plenary) which secures clarity, progression, and coherence across the school. • Pupils apply knowledge through problem-solving and reasoning tasks that make mathematics transferable beyond the classroom. • Retrieval practice is embedded (Mind the Gap, Know More Remember More, Maths Meetings) to strengthen long-term retention and fluency. • Independent tasks consolidate learning, while purposeful home practice (weekly home learning, Times Tables Rock Stars, topic-linked tasks) extends it. • In Year 4, children sit weekly times tables tests to build fluency, accuracy, and confidence under test conditions, preparing them for the statutory Multiplication Tables Check.

in their own ability to achieve highly in mathematics.	<ul style="list-style-type: none"> Progression is always purposeful: every step prepares pupils for the next, enabling them to achieve highly and develop a secure, connected understanding of mathematics.
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IMPLEMENTATION

Roles and responsibilities

Governors:

- Awareness of developments in the subject
- Monitoring of teaching and learning
- Acting as impartial critical observers within the subject

Senior Leadership Team:

- Creating an aspirational vision for mathematics
- Providing strategic direction to middle leaders
- Challenging and supporting middle leaders in their role
- Engagement in monitoring activities

Middle Leader:

- Establishing high quality teaching and learning of mathematics
- Modelling high quality teaching
- Raising the profile of mathematics across the school
- Identifying and supporting members of staff who need further development
- Ensuring policies and curriculum expectations are followed
- Monitoring standards of teaching and learning
- Monitoring and evaluating progress and attainment through assessments and data
- Managing resources effectively, ensuring CPA (concrete, pictorial, abstract) materials are available in all classrooms

Teachers:

- Following policy and guidance outlined by middle leaders
- Ensuring mathematics is taught effectively and statutory content from the National Curriculum is fully covered
- Planning effectively using Ark Curriculum Plus (Maths Mastery)
- Promoting precise mathematical vocabulary through working walls, star words, sentence stems, and talk tasks
- Developing subject knowledge where needed to secure confident teaching

Support Staff:

- Developing subject knowledge where needed
- Modelling the use of mathematical vocabulary during support and interventions
- Challenging and supporting pupils' thinking and strategies using manipulatives and scaffolds

Pupils:

- Active participation in every lesson

- Demonstrating curiosity, resilience, and determination to succeed
- Using precise mathematical vocabulary and sentence stems to explain reasoning
- Presenting learning with pride and accuracy

Parents/Carers:

- Talking to their children about what they are learning in mathematics and supporting fluency practice at home
- Engagement in home learning activities (e.g. weekly maths tasks, Times Tables Rock Stars)
- Supporting children in applying maths in everyday life (shopping, cooking, telling the time, measuring, budgeting)
- Attending school events and workshops to strengthen home-school partnerships

ASPECTS

Equal Opportunities

Positive attitudes towards mathematics are encouraged, so that all children, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics. The aim is to ensure that everyone makes progress and benefits from lessons. Lessons make extensive use of **manipulatives, oral rehearsal, Star Words, and pictorial representations**, supporting all learners and particularly those with EAL. Differentiated questions are used in lessons, and planned support is provided by teaching assistants and other adults.

Inclusion

At Stonebridge Primary we believe all learners are of equal value and that every pupil has the potential to achieve highly, regardless of ethnicity, gender, disadvantage, religion, race, or disability. This confidence in the capacity of all pupils is reflected in curriculum design and delivery.

Pupils with Special Educational Needs & Disabilities (SEND)

Pupils with SEND access a broad and balanced curriculum through quality-first teaching. Teachers differentiate learning to ensure accessibility, while some pupils may also receive personalised learning, 1:1 support, or specialist resources. This policy should be read alongside the school's SEND Policy and Information Report.

EAL Learners

Pupils identified as new to English are given every opportunity to acquire language and access mathematics fully. Home languages are used where appropriate to aid understanding, alongside carefully chosen resources to support engagement in a rich curriculum.

Health and Safety

Children are taught to use all equipment safely during mathematics sessions.

Safeguarding

If a matter of safeguarding arises, it will be addressed according to the school's Safeguarding Policy.

Planning

- Mathematics is taught through **five one-hour lessons per week**, following Ark Curriculum Plus (Mathematics Mastery) as our **long-term plan**.

- Each lesson follows the **six-part structure: Do Now, New Learning, Talk Task/Let's Explore, Develop Learning, Independent Task, Plenary**.
- Teachers use the **Diagnostic Questions online platform** to **pre-assess each child** at the start of every unit. This allows teachers to plan lessons that cater for the needs of all learners.
- **Pre-unit assessments** also spotlight children who may require **intervention or pre-teaching** to secure understanding before moving forward.
- At the end of each unit, children complete a **post-assessment** to measure impact and progress.
- In addition, pupils participate in **three 15-minute Maths Meetings per week** to:
 - Consolidate and automatise core facts and procedures.
 - Retrieve and keep prior content fresh through spaced, varied practice.
 - Use short, high-energy routines (skip counting, chants, number songs, choral responses) to strengthen recall and confidence.
 - Maintain pace and enjoyment without duplicating the Talk Task (which remains part of the 6-part lesson).
- Alongside daily lessons and Maths Meetings, we also embed **weekly arithmetic lessons**, which are carefully adapted to meet learners' needs, strengthen fluency, and build confidence in written and mental methods.

Teaching and Organisation

All children receive a **daily maths lesson**, although mathematical skills also run through many other areas of the curriculum.

- Each lesson focuses on **one clear learning objective**, which all children are expected to master. Extension activities enable children who grasp the objective rapidly to extend their learning by exploring it in greater depth.
- Lessons incorporate the **Maths Mastery approach**, enabling pupils to acquire a **deep, long-term, and secure understanding** of mathematics.
- Lesson sequences include elements of:
 - **Fluency** – practising key skills and recall.
 - **Reasoning** – deepening understanding through explanation and justification.
 - **Problem solving** – applying skills to a variety of contexts.
- **Whole-class teaching** is adopted and children work in **mixed-ability groups**, ensuring access and challenge for all.
- All classrooms have **mathematics displays** with key questions, sentence stems, *Star Words* vocabulary, and an **engaging Maths Meeting display** to support learning and retrieval.

Organisation:

Concrete–Pictorial–Abstract (CPA) Approach

At Stonebridge, we use the CPA approach to secure conceptual understanding and progression from practical exploration to formal recording. Pupils are introduced to new concepts through hands-on resources, supported by visual representations, before moving to abstract notation. This consistent progression ensures depth of understanding and allows all children to access the mathematics.

(See Appendix 1 for examples of the CPA approach.)

- Every classroom has a range of practical apparatus to support children's learning. Additional resources are stored centrally and are accessible to all.
 - Manipulatives are used in all lessons, from EYFS through Key Stage 1 and Key Stage 2, to secure conceptual understanding and support progression.
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Home Practice and Wider Learning

- Weekly home learning linked to the topics taught.
- Regular recall of number bonds and times tables.
- Use of **Times Tables Rock Stars** for multiplication fact fluency.
- **Weekly times tables test in Year 4** to prepare pupils for the Multiplication Tables Check and build confidence under test conditions.
- Encouragement of real-life application (measures, money, time, data) at home and in the community.

Resources

- **In School:** manipulatives (dienes, bead strings, Cuisenaire rods, counters, place-value counters), visualisers, mini-whiteboards, interactive displays.
 - **At Home:** login details for Times Tables Rock Stars, parent guides, practice packs.
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EYFS

In the Early Years Foundation Stage at Stonebridge, mathematics is taught through a balance of whole-class teaching, short carpet sessions, and continuous provision that allows children to further explore concepts independently, in pairs, or in small groups. Guided by Development Matters and Ark Curriculum Plus, children are regularly exposed to rich mathematical representations and supported with manipulatives to build secure conceptual understanding. Daily oral rehearsals and mathematical talk are embedded across routines and reinforced through short, focused maths meetings, enabling fluency and confidence to grow. Practitioners extend children's learning through one-to-one and small-group interactions, using carefully chosen questions, visual cues, and real-life contexts to make mathematics meaningful. This approach ensures that all children develop curiosity, resilience, and early mastery of key ideas, equipping them with strong foundations for their transition into Year 1.

IMPACT

Assessment

- Formative assessment takes place daily through higher-order questioning, the use of mini-whiteboards, and Assessment for Learning strategies, especially during Talk Tasks, to check understanding and adapt teaching responsively
- Feedback is primarily verbal and immediate, enabling misconceptions to be addressed within the lesson; live marking, self-assessment, and peer-assessment are also used to help pupils take ownership of their learning
- Diagnostic Questions are used pre- and post-unit in Years 1–6 to identify starting points, address misconceptions, and measure progress
- Bi-weekly assessments using Testbase are carried out from Year 1–6; every two weeks pupils complete a short assessment which provides regular insight into strengths and gaps, directly informs teacher planning, and helps measure the impact of teaching on pupil outcomes
- Weekly homework tasks consolidate learning and ensure regular practice beyond the classroom
- Weekly times tables tests build fluency, accuracy, and recall; engagement with Times Tables Rock Stars is monitored and used to support progression
- Summative assessment takes place termly through standardised assessments and annual benchmarks
- Statutory assessments include KS1 and KS2 SATs (as applicable) and the Year 4 Multiplication Tables Check
- In the EYFS, teacher assessment and observations recorded on Tapestry are used to track progress, drawing on evidence from play-based learning, mathematical talk, use of manipulatives, and problem-solving in continuous provision

Monitoring and Evaluation

- Lesson observations and learning walks.
 - Planning reviews and book scrutiny.
 - Pupil voice.
 - Data analysis to identify strengths and address gaps.
 - Findings inform CPD, curriculum refinements and are reported to SLT/governors; key messages shared with parents.
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APPENDICE

The appendices provide supporting documents and resources that underpin the teaching and learning of mathematics at Stonebridge. They include guidance on progression, consistent representations, and ways for parents to support learning at home. These appendices are reviewed annually alongside this policy to ensure they remain up to date and aligned with school and curriculum priorities.

Mathematics Curriculum Map: Reception											
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
Autumn	Early mathematical experiences				Pattern and early number		Numbers within 6		Addition and subtraction within 6		Measures
	•Classifying objects based on one attribute •Matching equal and unequal sets •Comparing objects and sets •Ordering objects and sets				•Recognise, describe, copy and extend colour and size patterns •Count and represent the numbers 1 to 3 •Estimate and check by counting		•Count up to six objects. •One more or one fewer •Order numbers 1 – 6 •Conservation of numbers within six		•Explore zero •Explore addition and subtraction		•Estimate, order, compare, discuss and explore capacity, weight and lengths
Spring	Numbers within 10		Calendar and time	Addition and subtraction within 10	Grouping and sharing		Number patterns within 15		Doubling and halving		Shape and pattern
	•Count up to ten objects •Represent, order and explore numbers to ten •One more or fewer, one greater or less		•Days of the week, seasons •Sequence daily events	•Explore addition as counting on and subtraction as taking away	•Counting and sharing in equal groups •Grouping into fives and tens •Relationship between grouping and sharing		•Count up to 15 objects and recognise different representations •Order and explore number patterns to 15 •One more or fewer		•Doubling and halving •Relationship between doubling and halving		•Describe and sort 2-D and 3-D shapes •Recognise, complete and create patterns
Summer	Securing addition and subtraction facts	Number patterns within 20		Number patterns beyond 20		Money	Measures		Exploration of patterns within number		
	•Commutativity •Explore addition and subtraction •Compare two amounts	•Count up to 10 and beyond with objects •Represent, compare and explore numbers to 20 •One more or fewer		•One more one less •Estimate and count •Grouping and sharing		•Coin recognition and values •Combinations to total 20p •Change from 10p	•Describe capacities •Compare volumes •Compare weights •Estimate, compare and order lengths		•Explore numbers and strategies •Recognise and extend patterns •Apply number, shape and measures knowledge •Count forwards and backwards		

The Dimensions of Depth - Conceptual Understanding, Language and Communication and Mathematical Thinking - underpin all aspects of the curriculum; problem solving is at the heart and is embedded in all units.

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Please follow the link below to access the Ark Curriculum Plus Mathematics curriculum maps from Reception through Year 6, which clearly outline the intended learning journey and unit sequencing across the primary phase.

<https://mymastery.arkcurriculumplus.org.uk/api/storage/85f502bb-d6c8-4941-9719-7b046dc1ea87/Curriculum%20Maps%20R-Y6.pdf?preview=true>

Vocabulary list

Mathematics Mastery vocabulary list		
This document highlights the vocabulary introduced throughout the primary curriculum – from Reception to Year 6.		
The vocabulary listed here is vocabulary that pupils are expected to use and understand on a daily basis within that year group, though the definitions are written for teacher reference and would not necessarily be shared with children as they stand. The vocabulary listed is cumulative and builds on the vocabulary previously introduced. Teachers should also consult with the Mathematics Mastery Primary Glossary.		
This is a working document and will be updated as required.		
Reception	Definition	Example
Above	Used to describe a higher position than another object.	The Maths Meetings board is above the sink.
Add	Carry out the process of addition.	I can add two numbers together to find a total.
Addition	The operation to combine at least two numbers or quantities to form a further number or quantity, the sum or total. Addition is the inverse operation to subtraction.	Three plus seven is equal to ten. This is an addition equation.
Altogether	In total.	That will be £2 altogether please.
Balance	A measuring tool used to weigh objects. It has two dishes hanging on a bar. Both dishes will be level when the contents weigh the same. Also, as a verb, indicates equivalence and equality.	The objects in the balance are unequal in weight because the dish on the right side is lower down than the dish on the left side. The two objects balance which means they have the same mass.
Before	In front of or prior to.	The number '3' comes before '5' on the number line.

<https://mymastery.arkcurriculumplus.org.uk/api/storage/3fe141e4-1fd2-4b82-b438-b168419ede30/Vocabulary%20List%20Reception%20to%20Year%206.pdf?preview=true>

Year 1 Key Representations

Find out more...

Watch the **Unit tutorial** before planning each unit.

Read the **planning guides** for suggestions of representations.

Make use of **PD videos** on unit pages and Progression in Calculations page.

Representations of number

Pupils are most familiar with concrete representations of number within 20 which show one to one correspondence, such as cubes, counters, bead strings to 20 and other countable objects. They also recognise numerals and numbers to 20. A ten frame has been used to represent numbers and think about what this shows.

Ordering numbers

Pupils have explored a number of ways to order and compare numbers practically using representations including a **number track** and a **number line**, within 20. These representations are used to secure counting within 20 and stating one more / one less.

Part-whole language and representations

Pupils will have had lots of experience partitioning numbers in different ways through exploring concrete representations. They may identify these as parts and should see that numbers can be split in different ways.

A part-whole model is used to represent number bonds, addition and subtraction. Pupils are familiar with the concept of a whole and partitioning this into two or more parts. They explore how to write this relationship as an equation.

whole = part + part
 $5 = 3 + 2$

Equations

The phrase 'is equal to' is used consistently to refer to the = symbol. What is on one side of the symbol is equal to what is on the other side. Present equations in different ways to support this:

$$2 + 3 = 5$$

$$5 = 3 + 2$$

Comparing numbers

Concrete representations are used to compare numbers, focusing on correct language use. The structure of the representation supports comparison: lining towers of cubes next to one another builds on one-to-one correspondence.

Five is **less than** seven. Five ones is **fewer than** seven ones.
Seven is **greater than** five.

Representing numbers 11-20

Pupils say, read and write teen numbers. Pupils understand the ten and ones relationship of teen numbers, supported by representations.

Counting principles – conservation of number

A key number principle for developing addition and subtraction strategies is to understand that the same number of objects will always have the same value.

Counting principles – subitising

Subitising is the ability to identify a group of objects without the need to count. Pupils have explored this and should be confident in subitising up to five objects. Making use of patterns e.g. die faces, triangle shapes can support this.

Doubling and halving

Pupils have had opportunities to represent doubling and halving within 20 practically using manipulatives and other countable objects. Some facts may be recalled and pupils may connect this with equal groups.

Development of division

Pupils explore counting in equal groups using manipulatives or pictorial representations.

Pupils have explored the concept of equal and unequal grouping and sharing in context using concrete manipulatives.

Developing fraction language

The foundations for fractions have been laid through exploration of half full / half empty and associated descriptions. Pupils have also explored doubling and halving without linking specifically to fractions.

Addition and subtraction strategies

Pupils are familiar with addition and subtraction (taking away) using concrete and pictorial representations. A range of contexts for this have been explored. Pupils should be familiar with strategies including count all, count on and count back using representations.

Upper KS2 Key Representations

Find out more...

Watch the **Unit tutorial** before planning each unit and read the **Unit Narrative**.

Read the **planning guides** for suggestions of representations.

Make use of **PD videos** on unit pages and Progression in Calculations page.

Representations of number

Pupils are familiar with a range of concrete and pictorial representations of number with and without a place value chart. These are used to represent a number or calculation and should not be used as a counting tool. Pupils have also experienced representing decimal numbers using manipulatives including repurposing Dienes equipment, understanding the base 10 relationship.

234 is two hundreds, three tens and four ones.

Tens	Ones	Tenths	Hundredths
2	3	4	

Number lines

Number lines can be used to represent and compare, demonstrating the continuous nature of the number system. When calculating, number lines may act as a jotting of the steps of a mental calculation and may begin 'empty' i.e. not have numbered divisions. They are also used as a representation for rounding.

Number fact knowledge

Pupils have an increasing range of number facts. Pupils should know all multiplication tables and related division facts. Pupils make increasing use of number facts when considering larger integers.

I know 132 is a multiple of 4 because I can partition it into 120 and 12. These are both multiples of 4.

Using strategies

Pupils are familiar with columnar addition and subtraction, short multiplication and short division written strategies and have developed conceptual understanding through concrete and pictorial representations. These strategies can be applied to larger integers and decimals. See PD videos for further exemplification.

Pupils should make use of a range of strategies, considering efficiency.

Which strategy is most efficient?

Part-whole language and representations

A part-whole model is used to represent the relationship between numbers in all four operations. The model is made of a whole and two or more parts.

Using multiple equal parts represents multiplication, division and fractions of quantities.

Close links are made between this and bar model representations.

Mental strategies

Pupils have experienced a range of mental strategies for all four operations, including:

Applying number bonds to 10 and 100 to calculate how many more/less to the next multiple of ten, extending to 100 and 1000, using the 'make 10' strategy.

Identifying numbers close to a multiple of ten or 100 e.g. 28, 201 and using a round and adjust strategy, including for multiplication. 'If I know 20×4 is 80, then 19×4 is 76'.

Identifying near doubles for addition. 43 and 45 can be seen as 'double 43 plus two'.

Subtracting numbers close together in value, through counting on to find the difference.

Once secure, these can be applied to larger integers and decimal values.

476 - 118 = 358

356 + 2 = 358

358 + 10 = 468

468 + 8 = 476

606 - 597 = 9. I can count on from 597 to 606. The difference is 9.

Bar models

Pictorial bar models and concrete Cuisenaire as bar models are used to represent part-whole relationships and knowns and unknowns within problems in all four operations. See PD videos for further exemplification.

I know the whole is 346, and one of the parts is 112. I do not know the value of the missing part. I can subtract 112 from 346.

The value of each part is seven and there are six equal parts. The whole is unknown. Six groups of seven is equal to 42. The whole is 42.

Representing fractions

Pupils will have represented unit, non-unit and improper fractions in a variety of ways including area, part of a set and on a number line. Through representations they understand equivalence. They have identified non-unit fractions of quantities.

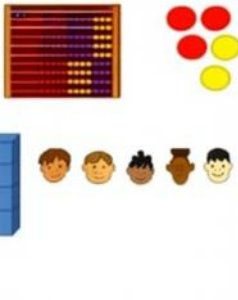
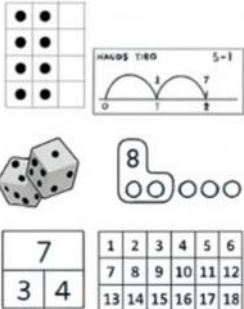

Two thirds of 120 is 80

numerator or vinculum or denominator

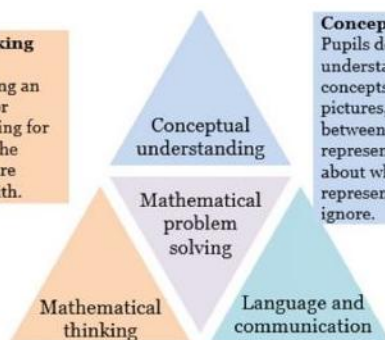
$1 \frac{1}{4}$

Representing multiplicative relationships

Pupils have used an increasing range of models to represent multiplicative relationships and use these to describe inverse relationships and commutativity.

Concrete	Pictorial	Abstract
		<p>13 - 10 = 3</p> 

Mathematical thinking
Pupils deepen their understanding by giving an examples, by sorting or comparing, or by looking for patterns and rules in the representations they are exploring problems with.



Conceptual understanding
Pupils deepen their understanding by representing concepts using objects and pictures, making connections between different representations and thinking about what different representations stress and ignore.

Language and communication
Pupils deepen their understanding by explaining, creating problems, justifying and proving using mathematical language. This acts as a scaffold for their thinking deepening their understanding further.

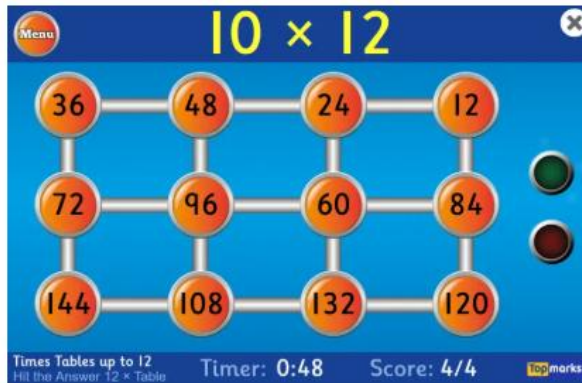


**Mathematics
Mastery**

Hit the Button

Hit the Button is an interactive maths game with quick fire questions on number bonds, times tables, doubling and halving, multiples, division facts and square numbers. The games, which are against the clock, challenge and develop mental maths skills. An untimed, practise mode is available in our [Hit the Button app](#) along with lots more extra features.

The activities can be matched to appropriate mathematical ability. Regular use of Hit the Button can help students to sharpen their recall of vital number facts in a fun way and learning multiplication tables need not be boring.



<https://www.topmarks.co.uk/maths-games/hit-the-button>

testbase



<https://ttrackstars.com/>

<https://ttrackstars.com/wp-content/uploads/2023/08/TTRS-Parent-Guide.pdf>





Parent Guide

We recommend a "little and often" approach; 3 minutes practice a day, 4 or 5 times a week is a good target.




What are the different Game Modes?

Single Player	
Jumping 10 coins per correct answer	The only game mode without a timer, players choose the table and operation (x or ÷ or both) they want to practice. Answer 10, 20 or 30 questions.
Gig 10 coins per correct answer	Gig games last 5 minutes and contain up to 100 questions, which come in 'waves', starting with the 10s, then the 2s, 3s, 4s, 6s, 8s, 9s, 11s and 12s. Novices are not expected to get past the 10s. Gigs provide the child (and their teacher) with a simple measure of their current skills, which is why learners should concentrate fully for the whole Gig as they won't get another try until next month.
Garage 10 coins per correct answer	Players are given a personalised set of 6 multiplication questions (and their matching division questions) in each round. The questions then get kept adjusting to provide the best fit for every learner's needs. This is probably the best game made for improving their recall while they're still learning.
Studio 1 coin per correct answer	Help your child earn their Rock Status, which is based on their Studio Speed. The faster they are the better their status. Studio Speed is the average of their most recent 10 Studio games. Suitable for confident players.
Soundcheck 1 coin per correct answer	Soundcheck games ask 25 multiplication questions (up to 12x12), allowing 6 seconds for each question. Suitable for confident players.
Multi Player	
Festival 1 coin per correct answer	Children compete against others from around the world, with their identities protected behind their rock names. Suitable for confident players.
Arena 1 coin per correct answer	Children race against other members of their class who are logged in and choose the same arena name at the same time. Arena games use the same smart question algorithm as Garage games.
Rock Slam 1 coin per correct answer	Players challenge their classmates or teachers to answer as many questions as they can in 60 seconds, setting a score for the challenger to beat. Pupils don't need to be online at the same time.
Tournaments	<p>Battle of the Bands - groups of children within the same school (usually classes, year groups or teams) compete to have the highest average score per player.</p> <p>Top of the Rocks - like a Battle of the Bands between schools. The winning class or school is the one with the most correct answers per person.</p> <p>Important: Each correct answer (in any game mode) earns 2 points towards the team's total in addition to the coins earned. For example, in Garage games each correct answer is worth 1 point for the team and 10 coins for the player.</p>

Games with CBBC and CBeebies characters

 <p>Operation Ouch! Billy Bones and the Snout Zombies - game Explore the hospital to find all of Billy's missing bones. KS2 Science • Ages 7-11</p>	 <p>Operation Ouch! It Takes Guts! - game Test your knowledge of the digestive system from the mouth... to the bum! KS2 Science • Ages 7-11</p>	 <p>Horrible Histories: Raid and Trade - game Lead your Viking settlement to victory by raiding and trading from AD750 - 1066. KS2 Maths • Ages 7-11</p>	 <p>Numberblocks: See the Amount - game Join the Numberblocks in this maths game for Reception about subitising. Early Years Maths • Ages 4-5</p>
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Brand new games from BBC Bitesize!

 <p>Horrible Science: Stinky Space - science game Join Pigette on her epic mission through the Solar System and learn some revolting facts about space along the way. KS2 Science • Ages 7-11</p>	 <p>Seymour Science: Smashing Seasons - science game Find out what makes each season special with Seymour Science and his friends in this interactive game. KS1 Science • Ages 5-7</p>	 <p>Seymour Science: Lights, Sound, Power! - science game Come into the workshop and use your science skills to help Seymour and his friends get ready for their new show. KS2 Science • Ages 7-11</p>	 <p>The Canine Crew: Measuring Mass - maths game Use your maths skills to help the Canine Crew solve problems at the bakery, the post office and the building site. KS1 Maths • Ages 5-7</p>
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<https://www.bbc.co.uk/bitesize/primary>





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