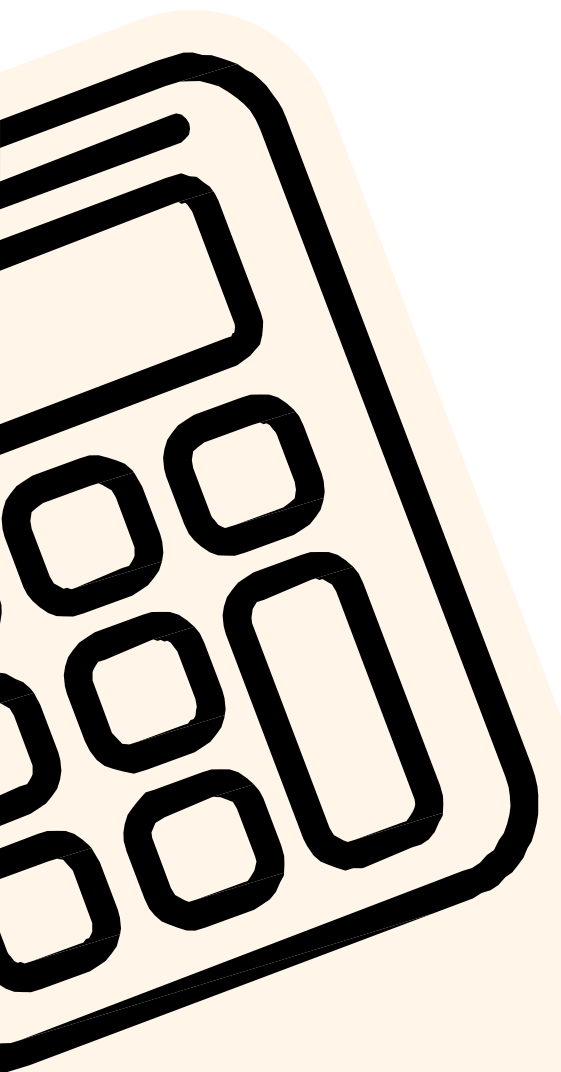


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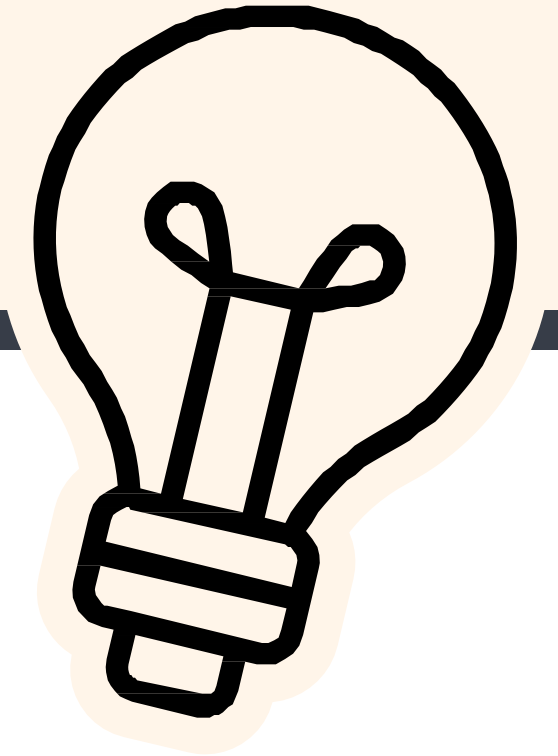
20.1.26

MATHEMATICAL FLUENCY

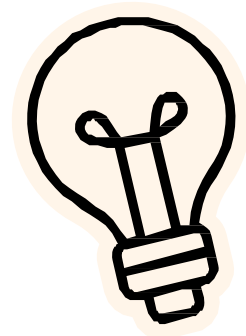




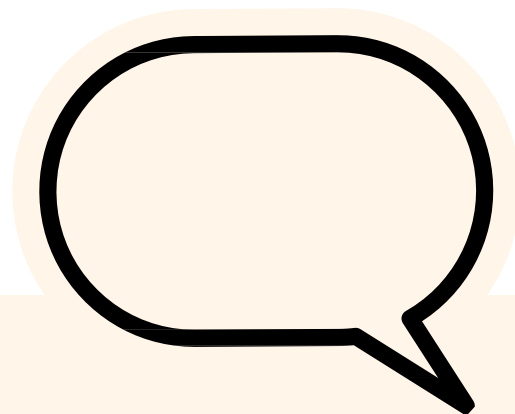
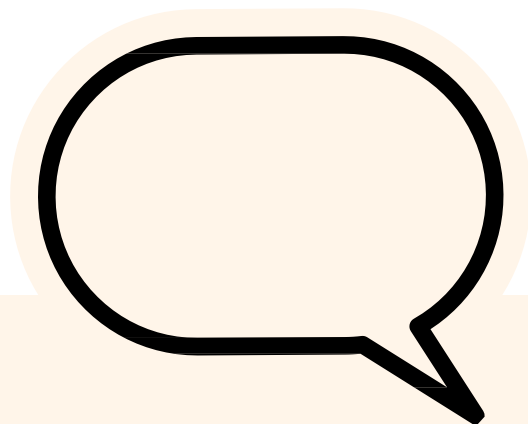
RECEPTION EARLY LEARNING GOALS

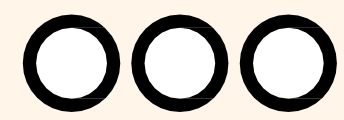


AIMS

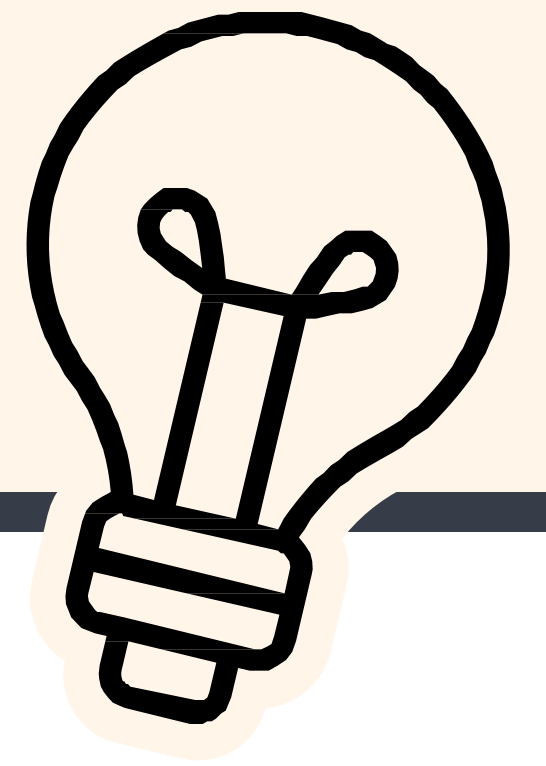


By the end of the reception year, children are expected to develop a strong foundation in mathematics, including counting, number recognition, and basic operations.



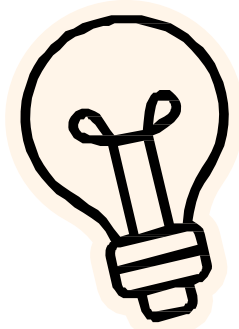


NATIONAL CURRICULUM

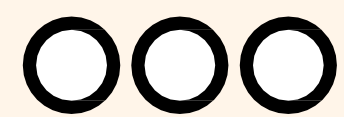


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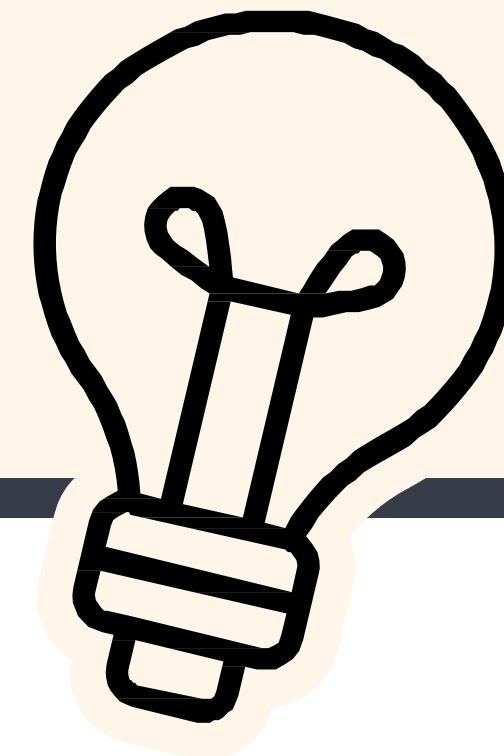
The national curriculum for mathematics aims to ensure that all pupils:



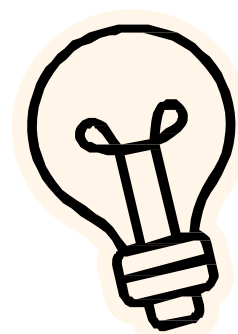
become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately



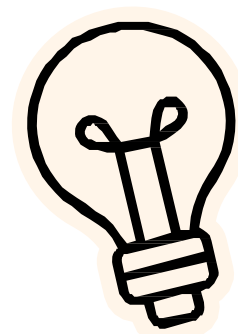
NATIONAL CURRICULUM



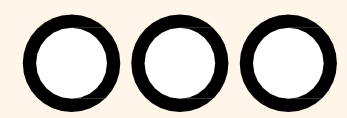
AIMS



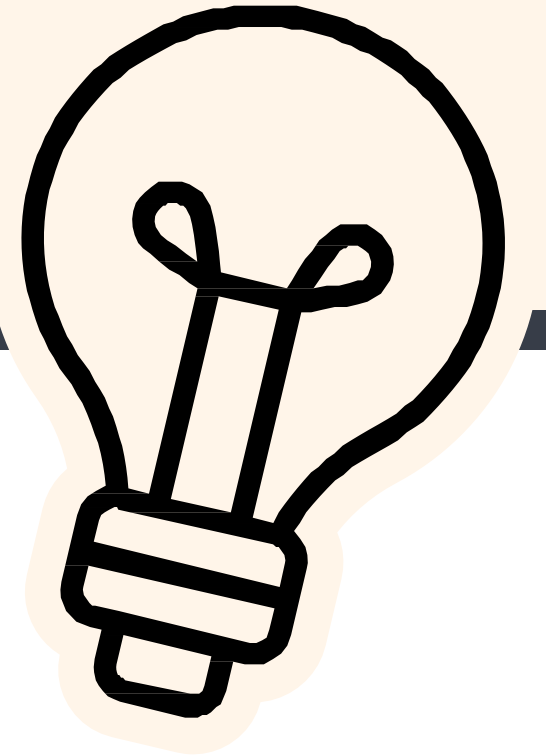
reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language



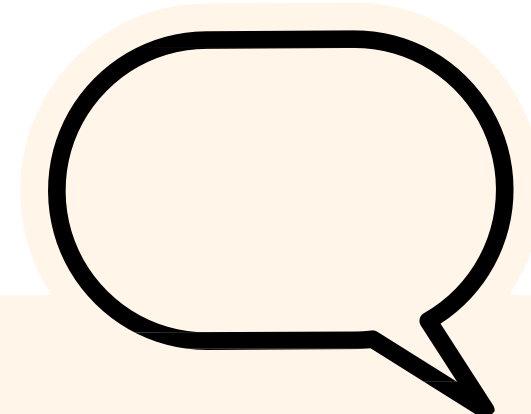
can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions



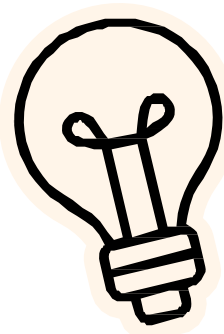
NATIONAL CURRICULUM



Mathematics is an interconnected subject in which pupils need to be able to move **fluently** between representations of mathematical ideas.

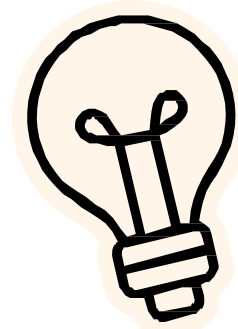


○○○ EXPECTATIONS - RECEPTION



Number

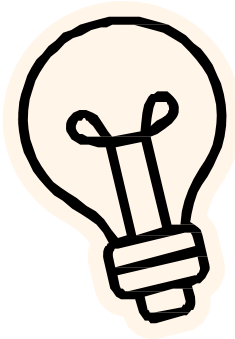
- have a **deep** understanding of numbers to 10, including the **composition** of each number;
- subitise (recognise quantities without counting) up to 5;
- **automatically** recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including doubling facts.



Numerical Patterns

- compare quantities up to 10 in **different contexts**, recognising when one quantity is **greater** than, less than or the same as the other quantity;
- explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

○○○ EXPECTATIONS - YEAR 1

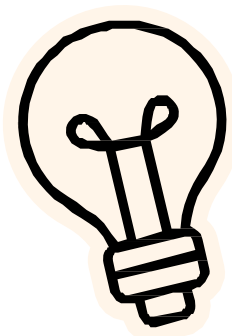


Number - number and place value

Pupils should be taught to:

- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s
- given a number, identify 1 more and 1 less
- identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
- read and write numbers from 1 to 20 in numerals and words

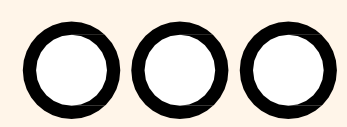
○○○ EXPECTATIONS - YEAR 1



Number - addition and subtraction

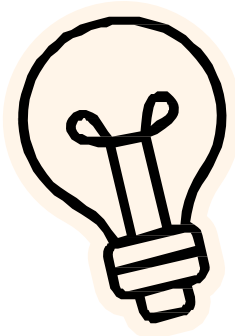
Pupils should be taught to:

- read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including 0
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$



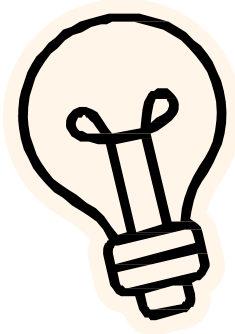
EXPECTATIONS - YEAR 1

Number - multiplication and division



Pupils should be taught to:

- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher



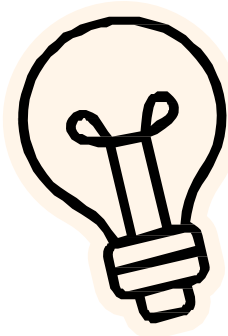
Number - fractions

Pupils should be taught to:

- recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity
- recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity

○○○ EXPECTATIONS - YEAR 2

Number - number and place value



Pupils should be taught to:

count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward

recognise the place value of each digit in a two-digit number (10s, 1s)

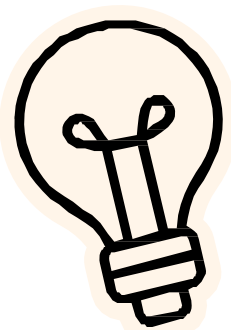
identify, represent and estimate numbers using different representations, including the number line

compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs

read and write numbers to at least 100 in numerals and in words

use place value and number facts to solve problems

○○○ EXPECTATIONS - YEAR 2

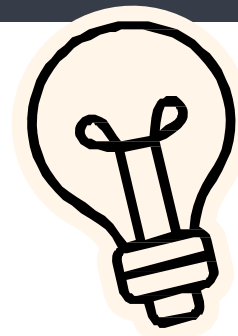


Number - addition and subtraction

Pupils should be taught to:

- solve problems with addition and subtraction:
 - using concrete objects and pictorial representations, including those involving numbers, quantities and measures
 - applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
 - a two-digit number and 1s
 - a two-digit number and 10s
 - 2 two-digit numbers
 - adding 3 one-digit numbers
- show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems

○○○ EXPECTATIONS - YEAR 2

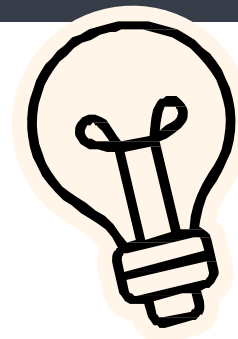


Number - multiplication and division

Pupils should be taught to:

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs
- show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

○○○ EXPECTATIONS - YEAR 2



Number - fractions

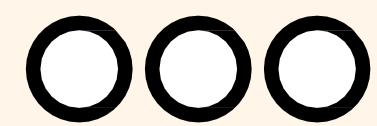
Pupils should be taught to:

- recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

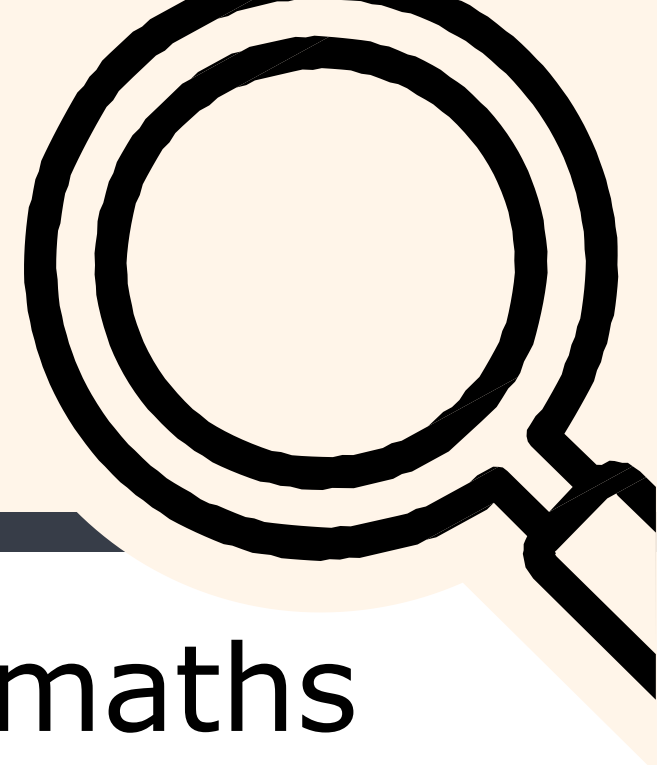
○○○CHANGES TO TEACHING MATHS



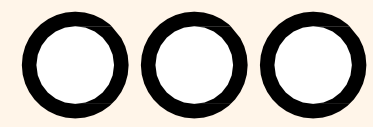
Children learn best through activities that are hands-on, practical, visual and through play. There is greater emphasis on understanding rather than rote learning of simple processes. Learning is not a race, everyone learns at different paces and in different ways. It is important that children are secure with the core number concepts with smaller numbers before rushing on to higher numbers.



MATHS MASTERY



Children in the early years develop the concept of maths mastery through maths talk, practicing the skills they've learned during play, and developing number sense. The key is to keep activities fun and part of the daily routine.



NCETM MATHS MASTERY

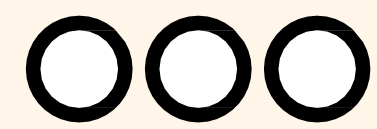


Maths mastery program moves away from counting as a strategy.

For children who struggle with maths later on, they often have an overreliance on counting which isn't an effective strategy with larger numbers.

Eg. $26 + 22 + 24 =$

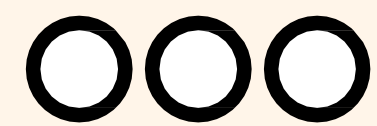
We encourage children to use number facts and other things that they know to find the answer more quickly and in a simpler way.



NCETM MASTERING NUMBER



- oTo support the teaching of basic maths skills in our school.
- oThis project aims to secure firm foundations in the development of good number sense for all.
- oThe aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number. Attention has been given to key knowledge and understanding needed in Reception classes, and progression through KS1 to support success in the future.



UNDERSTANDING NUMBER



You may feel that your child can already count to 10/20/50/100 and beyond and therefore needs to work on bigger numbers.

But have you considered:



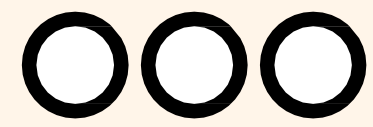
They may just know the numbers by rote?



They may not have grasped the tensness of 10?



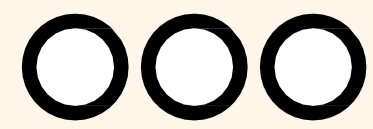
They may not understand the numbers within numbers
i.e. that 5 is made up of 3 and 2, 4 and 1



CARDINALTY



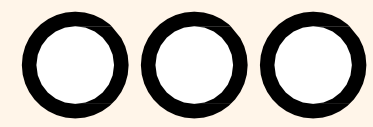
Cardinality refers to the quantity of things represented by a number. It is a fundamental concept in early mathematics that helps children understand how many objects are in a group.



CARDINALTY



- Rote learning in correct order
- 1:1 correspondence – 1 number for each object counted
- Knowing the last number counted is the total
- Recognising numerals and matching these with a number of things.
- **SUBITISING:**
- recognising, WITHOUT counting, when 3 is being shown. (game)
- The organisation and patterns are key – helps with conceptual subitising patterns for larger numbers

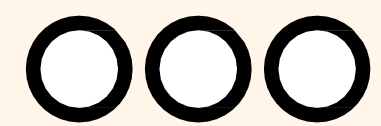


CARDINALITY



COMMON ERRORS:

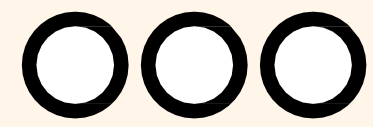
- Missing an object or counting the same thing twice
- Carrying on counting past the final number.
- Difficulties recognising patterns or arrangements of objects and needing to count rather than subitise



COMPARISON



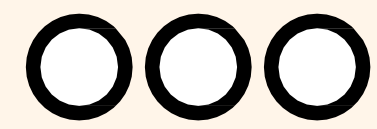
Teaching children to understand and compare numbers effectively.



COMPARISON



- More than/less than
- Recognising groups with the same number of items. Equal and unequal.
- Comparing actual numbers and reasoning with known number facts.
- Compare numbers that are far apart and close together. Eg. knowing that 10 is a lot bigger than 2 but 3 is only a little bigger.
- 1 more/1 less than between sequential numbers

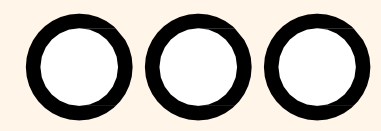


COMPARISON



COMMON ERRORS:

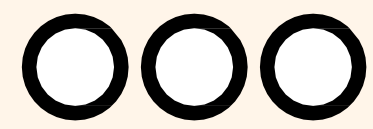
- Comparing based on size rather than value.
- Giving a response that doesn't match the
- context e.g. 'There are 7 cars in a garage and then 2 more go in.'
The child guesses there are 4 cars in total inside.



COMPOSITION



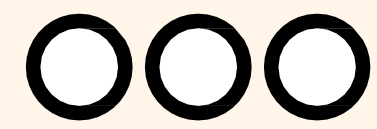
Understanding that one number can be made up from (composed from) two or more smaller numbers



COMPOSITION



- Part/whole understanding of numbers – finding smaller patterns of number within bigger numbers
- Inverse operations – knowing that $3 + 2 = 5$
- therefore $2 + 3 = 5$ | $5 - 3 = 2$ | $5 - 2 = 3$
- Partitioning – knowing a number can be split up into smaller numbers
- Number bonds – knowing which pairs make a given number. Eg. $4 + 6 = 10$

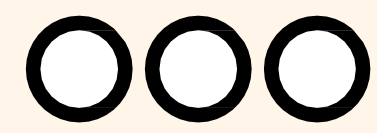


COMPOSITION



COMMON ERRORS:

- misunderstandings relating to the place value of numbers
- children suggesting that a larger number than the total are hidden.



KEY VOCABULARY - RECEPTION



Number and place value

subitise
count
order
compare
forwards
backwards
numerals
digit
one more
one less
equal to
more than
less than
fewer

Addition and subtraction

add
plus
altogether
total
makes
equals
take away
subtract
minus
less
part
whole

KEY VOCABULARY - KS1



Home > Year Group Information > Year 1 > How to Help your Child at Home > Maths

Maths

Please see below, information on Maths in Year 1:

- Maths Workshop Presentation - Reception & KS1 January 2025 PDF
- Year 1 Maths Vocabulary List PDF
- Calculation Policy 2024 PDF

In this section

Homework

English

> Maths

Recommended Reading

Useful Websites

Year 1

Numbers and the number system

Counting, properties of numbers and number sequences

number
zero, one, two, three... to twenty and beyond
zero, ten, twenty... one hundred
none
how many...?
count, count (up) to
count on (from, to)
count back (from, to)
count in ones, twos... tens...
more, less, many, few
odd, even
every other
how many times?

Place value and ordering

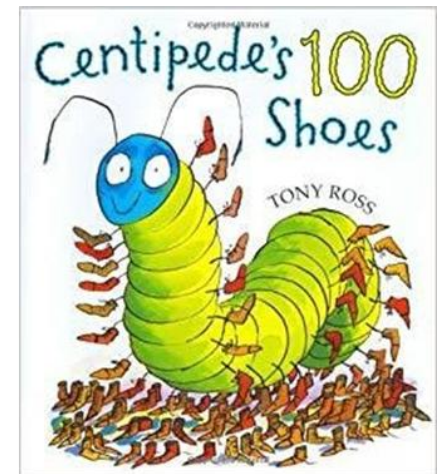
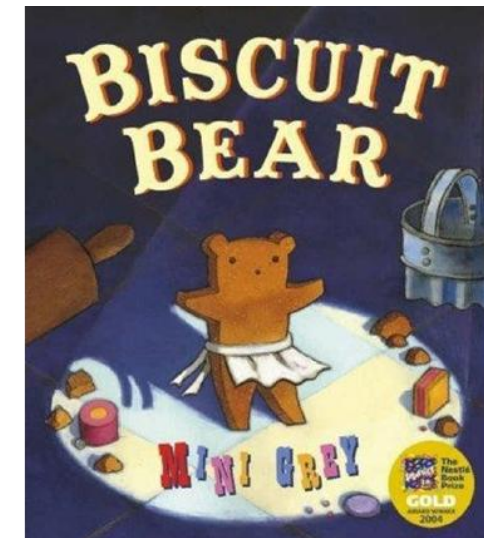
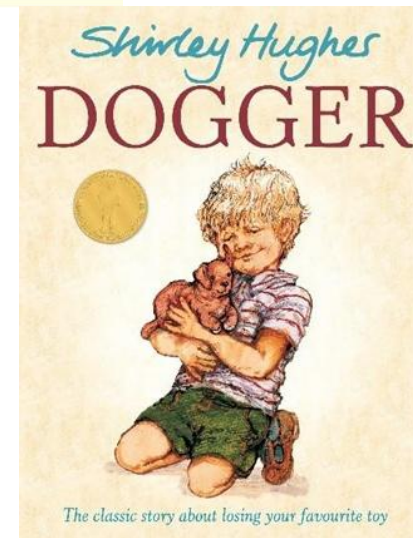
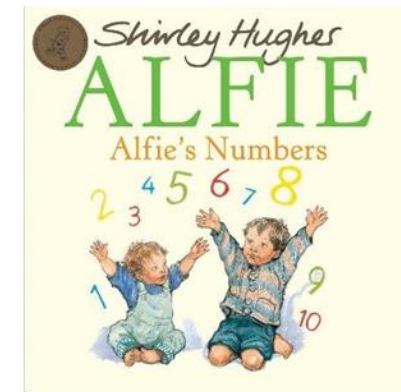
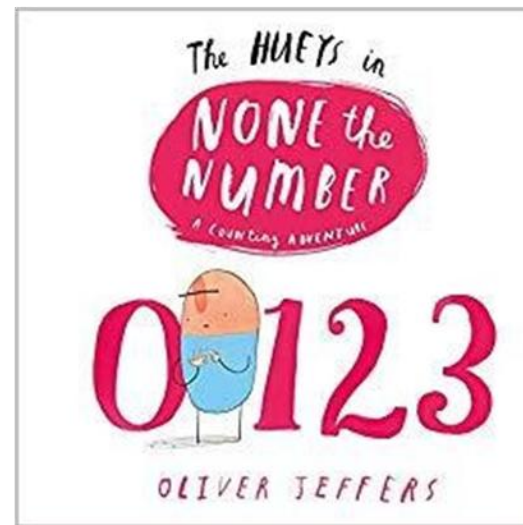
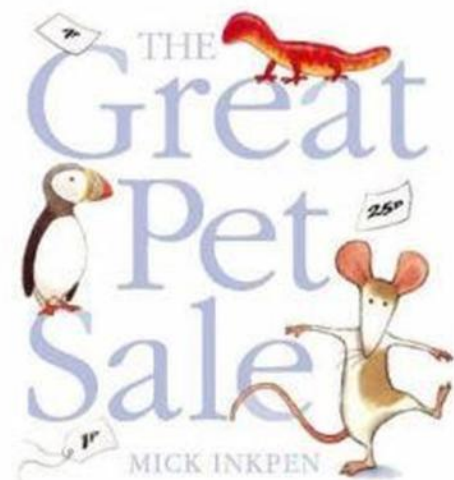
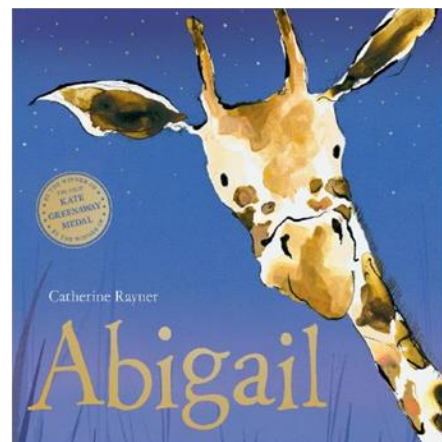
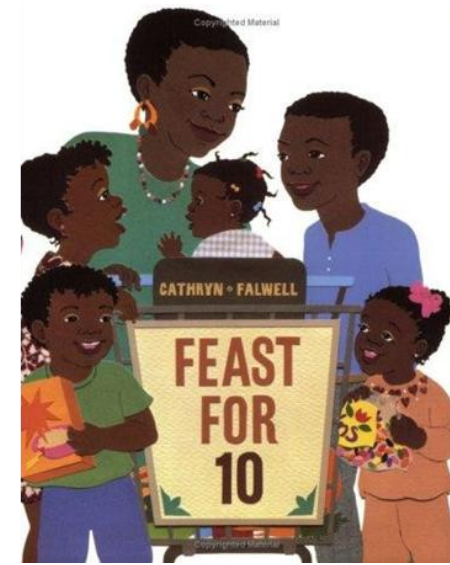
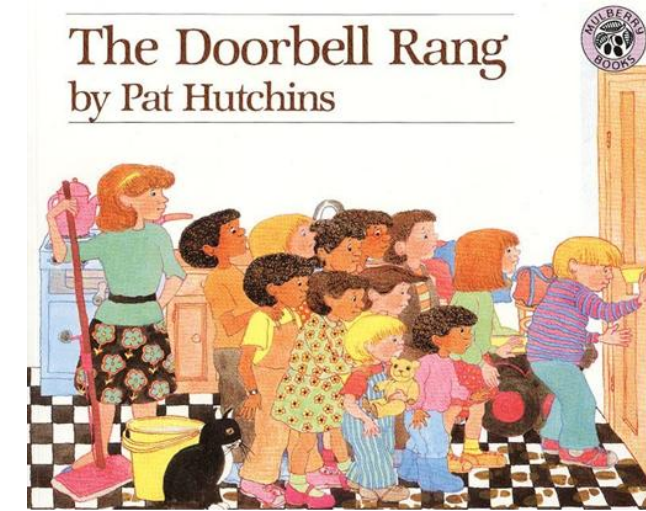
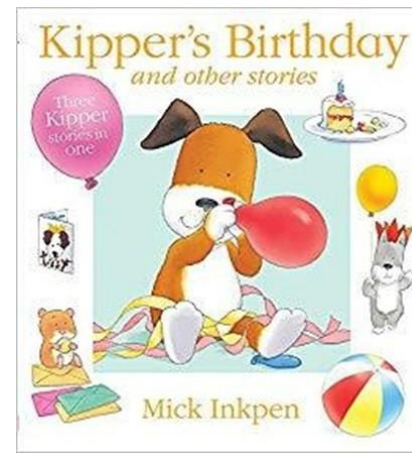
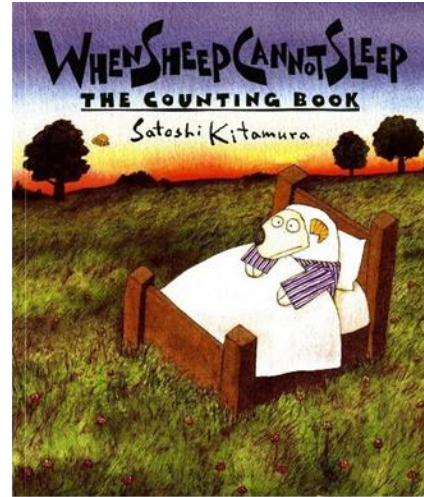
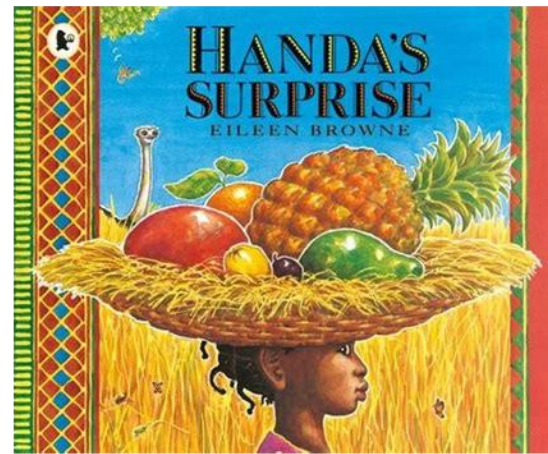
units, ones
tens
exchange
digit
'teens' number
the same number as, as many as
equal to
Of **two** objects/amounts:
greater, more, larger, bigger
less, fewer, smaller
Of **three** or more objects/amounts:
greatest, most, biggest, largest
least, fewest, smallest
one more, ten more
one less, ten less
compare
order
size
first, second, third... tenth,
eleventh... twentieth
last, last but one

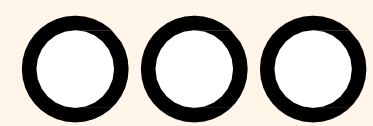
○○○ HOW YOU CAN HELP AT HOME



- Focussing on mental calculations.
- Reinforcing the importance of estimation .
- Using maths in a real life context (eg time & money)
- Asking children to explain how they have calculated something using a method that suits them.
- Discussions about maths through sharing picture books.

BOOKS ABOUT NUMBER





USEFUL WEBSITES



1. Topmarks – Early Years & KS1 Maths Games

A huge collection of free, interactive games for counting, sequencing, ordering, number bonds and more —tailored by age (3–5 and 5–7). Great for Reception counting games and KS1 number skills.

👉 Especially good for: counting to 10/20, ordering numbers, addition & subtraction games.

2. Hit the Button (Quick-Fire Mental Maths)

Fast-paced mental maths platform with timed games for number bonds, doubling, halving, more/less and early facts.

👉 Best for: building speed and accuracy with basic number facts.

3. ICT Games

Free UK teacher–designed interactive games for counting, ordering, addition and early number concepts, all linked to KS1 curriculum areas.

👉 Best for: engaging topic-specific practice.

4. Free-Maths.Games

Free maths games and lessons suitable for Reception up to KS1, including fun counting and simple addition/subtraction topics.

👉 Best for: lots of free, playable games without signup.

OOO THANK YOU

Any questions?

