


Maths

- Deeper learning.
- All children mastering calculation with confidence.
- More time on fewer topics.
- Focus on Fluency, reasoning and solving problems.



- 
- **FLUENCY**: Through practise children can recall and apply knowledge **rapidly** and **accurately**. Fluency covers retrieval of facts from memory. Being mathematically fluent also involves choosing methods and procedures and working flexibly e.g. $3004 - 2997$: count on or $2997 + 3 = 3000$, $3000 + 4 = 3004$, $3 + 4 = 7$, but if $2005 - 8$ then counting on would not be as fluent, instead count back or -5 from 2005 and then -3 .
 - **REASONING**: conjecturing relationships and generalisations; developing an argument, justification or proof using mathematical language.
 - **PROBLEM SOLVING**: applying their mathematics to a range of problems with increasing sophistication.

Early Years (Reception)

- Counting, understanding and using numbers, calculating simple addition and subtraction problems; and describing shape, spaces and measure.





Key Stage 1

- Pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools].
- Pupils develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary.
- Pupils use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.
- **By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value.**

Years 3 and 4

- Pupils become increasingly fluent with whole numbers and the 4 operations, including number facts and the concept of place value.
- Pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.
- Solve a range of problems, including with simple fractions and decimal place value.
- Draw shapes and talk about their properties.
- Use measuring instruments with accuracy and make connections between measure and number.
- **By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table.**

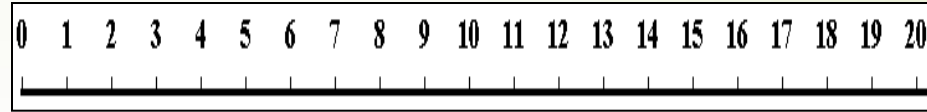
Years 5 and 6

- Pupils extend their understanding of the number system and place value to include larger numbers.
- Pupils solve a wider range of problems.
- They can choose and use efficient written and mental methods of calculation.
- Pupils are introduced to the language of algebra as a means for solving a variety of problems.
- In geometry and measures they consolidate and extend knowledge developed in number.
- Pupils classify shapes with increasingly complex geometric properties and learn the vocabulary they need to describe them.
- **By the end of year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages.**

Some resources



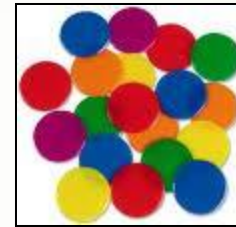
Numicon



Number line



Dienes



Counters

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

100 square



Place value cards

Interactive computer resources



Beadstrings

Times tables



- Children who know their times tables facts will be able to answer questions more quickly and focus on using other maths strategies in more complex problems, rather than being slowed down by the multiplication.
- Expectation now is that children know their tables up to 12x12 by the end of Year 4.
- Will become part of the Year 6 tests in 2019.

Times tables

- ➔ Repetition
- ➔ In any order
- ➔ Look for and talk about patterns
- ➔ Use arrays if needed

- ➔ Link to division and fractions/decimals, for example ask; “What is 3×4 ? What is $12 \div 4$? What is a third of 12? What is 0.3×4 ?”
- ➔ Tables tennis



$$4 \times 6 = 24$$



$$6 \times 4 = 24$$

Place value



Children need a very secure understanding of place value.

- Reception – Count to 20, place them in order
- Year 1 – Identify and represent numbers using objects and pictorial representations. Focus on numbers to 20 then when secure move beyond.
- Year 2 – 2-digit numbers
- Year 3 – 3-digit numbers. Decimals are introduced.
- Year 4 – 4-digit numbers. Negative numbers are introduced. Roman numerals to 100.
- Year 5 – Working with numbers to 1 000 000. Roman numerals to 1000.
- Year 6 – Numbers to 10 000 000



How you can support this

- Talk about numbers - "What is that number? What does this digit mean? (is it a one, ten, hundred, thousand ...) Can you tell me a number higher/lower than this number?"
- Draw pictures of the number to represent the values of each digit.
- Position numbers on a numberline.
- Yoikes is a game you could play together.
- Strip and clip.
- This can be done with whole numbers (to an appropriate value for your child), decimals, negative numbers ...

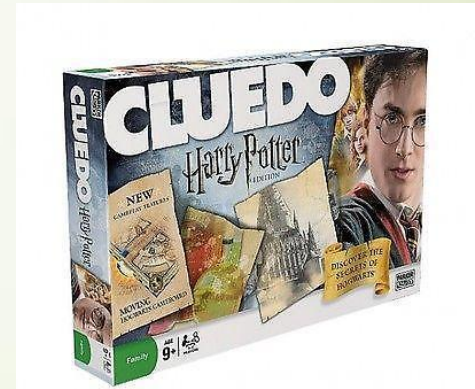
Number facts

- Number bonds to 10, 20 and 100
- Odd and even numbers
- Doubling and halving
- Rounding



Games

- Develop mathematical skills, all round thinking, logic, strategy and problems solving.
- Snakes and ladders
- Guess Who – systematic working, exploring possibilities
- Junior monopoly – money
- Cluedo – strategy
- Noughts and crosses – strategy
- Connect 4 – strategy
- Bingo – can choose numbers in a times table and then ask questions like 3×6 – if they have that answer they cross out

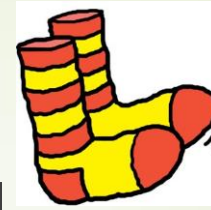


'Real-life maths'



- Telling the time – planning a day out- what time should we leave? What time should we get there? Reading TV guides – How long is that programme?
- Cooking - weighing ingredients, capacity, reading scales, adapting recipes
- Measuring – how much does that tin weigh? How long is ...? How far is ...?
- Counting up and down the stairs
- Number rhymes
- Using maps and giving directions – you could orally map out your route to school – walk forwards 40 steps, take a quarter turn to the left (anti-clockwise)

- Pair socks in washing
- Counting cars on the way to school
- Spotting different numbers in the environment – number plates, door numbers
- Shopping – counting money, change ...
- Keeping scores in games
- Shape – spotting shapes e.g. What shape is that tin?
Can you see a hexagon? Can you see any tessellating shapes?





My maths

- <https://www.mymaths.co.uk/primary.html>
- Login: midps Password: division
- Children use in school
- Maths games
- Login:
- Username:
- Password:

And finally

- ▶ Nurture that sense of enjoyment and curiosity children naturally have.
- ▶ Encourage them to appreciate the power and beauty of mathematics
- ▶ Celebrate successes
- ▶ Easy/hard line

