



Have a go at these sums. Think about how your child might approach them.

$6+3$

$6-2$

$9+3$

$16-2$

$12+5$

$12-3$

$18+3$

$25-3$

$22+5$

$22-4$

$29+3$

$31-4$

Use the practical manipulatives on the table. Does that make you change how you might model it?

Year 1 Mathematics Workshop



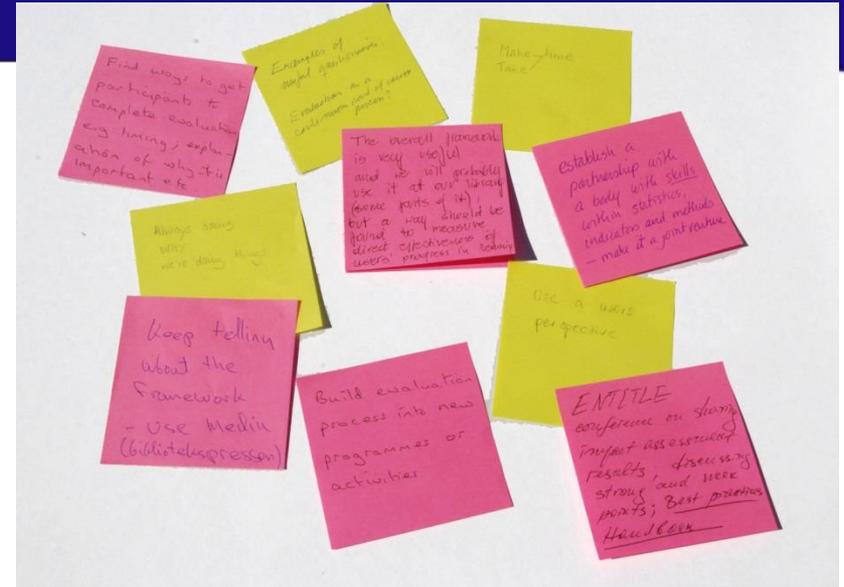
Ros Morgan
Vicki Bird

Assistant Head teacher
Year 1 teacher



Objectives:

- Explain and demonstrate how mathematics is taught in Year 1 at Fox
- Increase confidence and understanding in supporting your child
- Teach strategies for helping your child at home
- New maths curriculum

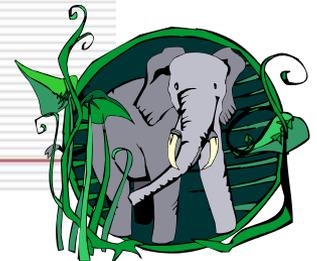


Write down 3 positive and negative experiences of Maths.



A Conversation between Patrick (aged 4) and Mark (professor in teaching of mathematics):

- Mark: What is four and one more?
 - Patrick: Six
 - Mark: What is four giraffes and one more?
 - Patrick: Five giraffes
 - Mark: What is four elephants and one more?
 - Patrick: Five elephants
 - Mark: What is four and one more?
 - Patrick (looks him in the eye): Six.
-





What does it look like in the classroom?

- 3/4 lessons per week and a daily mental maths session.

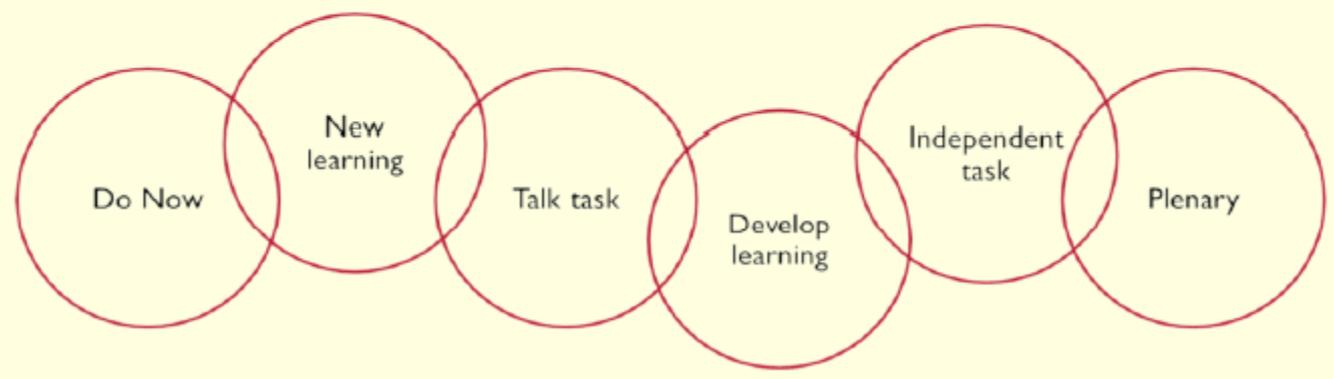
Typical lesson is made up of 6 parts:

1. Do now
2. Introduce Learning
3. Talk task
4. Develop learning
5. Independent and/or adult led activity
6. Plenary

- Maths Meeting



Multi-part Lessons

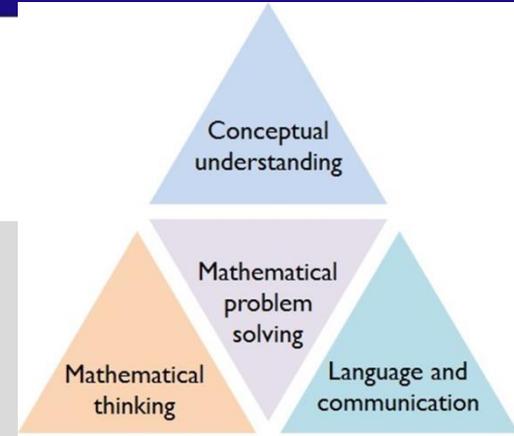




Year 1 Curriculum

Mathematical problem solving is at the heart of the curriculum, we focus on children:

- Using spoken and written language with confidence and clarity to explain and justify mathematical reasoning.
- Having a deep conceptual understanding of mathematical concepts and skills.
- Developing mathematical thinking, including generalising, classifying and comparing, and modifying.





Speaking and listening

- Vocabulary
- Questioning
- Full sentences
- Reasoning and explanation
- Problem solving

How do you know?
Can you show me?
Prove it to me...
Can you show me in
a different way?

How would you use these manipulatives and focus on encouraging your child to use the correct vocabulary to explain their thinking?

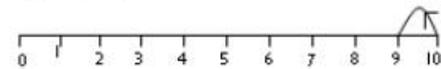
Resources we use in school



Using fingers to represent 1's, 2's etc.



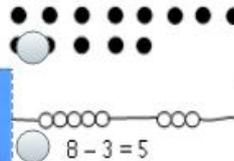
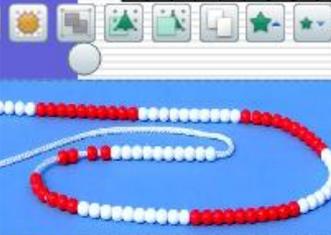
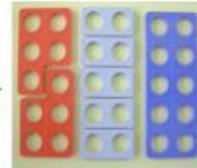
$$10 - 1 = 9$$



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

each ...?

Matching groups of Numicon to a given plate.



The difference between 8 and 5 is 3.





Year 1 statutory curriculum

The curriculum is designed so that pupils explore mathematical ideas in depth

- Number – number and place value
- Number – addition and subtraction
- Number – Multiplication and division
- Number – fractions
- Measurement
- Geometry: properties of shape
- Geometry – position and movement

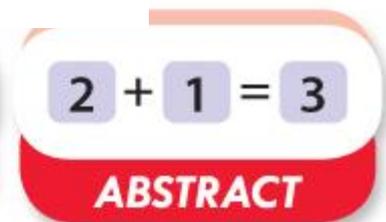
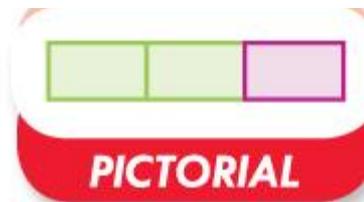
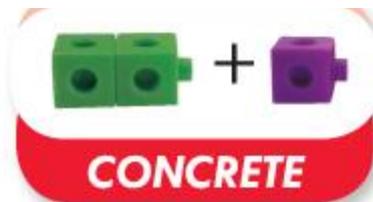
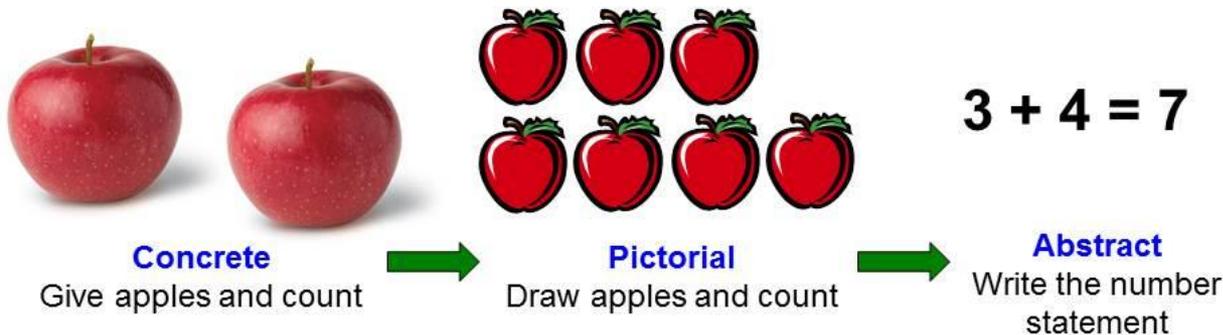
- Mastery curriculum
- Reading and spelling of mathematical vocabulary

CPA model

CPA Approach	
Stage	Characteristics
Concrete	Refers to the use of manipulatives, measuring tools or objects that the student handles.
Pictorial	Refers to the use of drawings, diagrams, charts or graphs that the student draws
Abstract	Refers to abstract representations such as numbers and letters that the student writes

Example:

Tom had 3 apples. His mother gave him 4 more apples. How many apples did he have altogether?





Number and place value

- 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 twos, fives and tens
- given a number, identify one more and one 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.



Number: addition and subtraction

- 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 zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$.

Concrete	Representational	Abstract
Students manipulate hands-on, concrete materials	Students draw and observe diagrams, or watch the teacher touching and moving hands-on materials	Numbers and mathematical symbols



Number: multiplication and division

- 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

- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.



Measurement

compare, describe, measure, solve and record practical problems for:

- lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]
- mass/weight [for example, heavy/light, heavier than, lighter than]
- capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]
- recognise and know the value of different denominations of coins and notes
- sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]
- recognise and use language relating to dates, including days of the week, weeks, months and years
- tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. [quicker, slower, earlier, later, hours, minutes, seconds]



Geometry: properties of shapes, position and movement

- recognise and name common 2-D and 3-D shapes, including:
 - 2-D shapes [for example, rectangles (including squares), circles and triangles]
 - 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].
- describe position, direction and movement, including whole, half, quarter and three-quarter turns.

Maths Meetings

AUGUST

100	20	21	50
90	18	19	45
80	16	17	40
70	14	15	35
60	12	13	30
50	10	11	25
40	8	9	20
30	6	7	15
20	4	5	10
10	2	3	5
0	0	1	0

Secret Number

Today's weather is:



Attendance

Present	Absent

Lunch

School	Home

Monthly Calendar

January
February
March
April
May
June
July
August
September
October
November
December

Daily Count

Lesson _____ Start at _____ Count by _____

Seasons



Fact Family

The addition and subtraction fact family for the numbers , , and is:

+ _____ + _____ - _____ - _____

Number of the Day

Today's Pattern

Temperature



Time



Weather Log

Yesterday was: _____

Today is: _____

Tomorrow will be: _____

Days of the Week

Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday

100 Chart

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
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81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Today's Date



Progression in calculation

FOUNDATION

Calculation Strategies

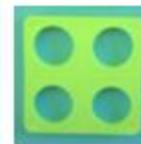
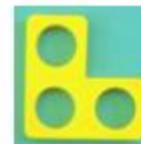
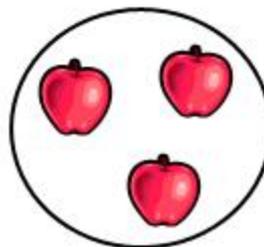
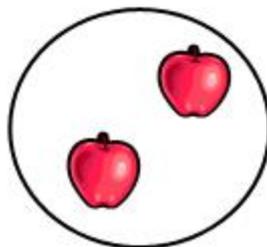
Counting on from a number to find the total

I have 5 pennies in my tin. I put in one, two, three pence more. How many pennies are in the tin now?

Use moveable objects when finding totals.
Touch and align each object as it is counted.



Count first group, start count from first group's total when counting second group



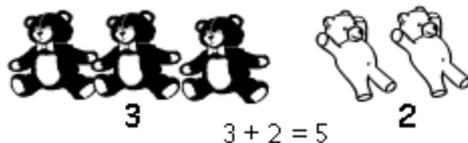
3

4



YEAR 1

Calculation Strategies

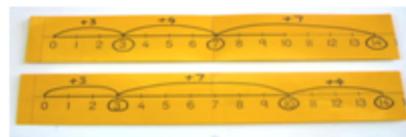


Jane had 3 bears. She was given 2 more. How many does she have now?

Addition in any order

Use numberline and Numicon to show that addition can be done in any order

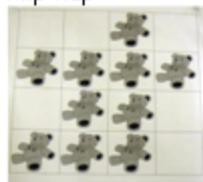
$$3 + 4 + 7 = 3 + 7 + 4$$



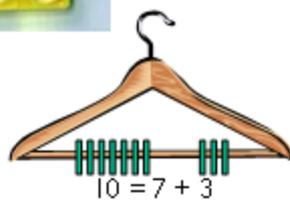
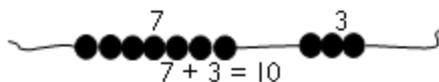
To support learning of number facts using a variety of visual resources:

Bonds to 10

Flip flap



$$7 + 3 = 10$$



$$10 = 7 + 3$$

Make 6



2 and ...



3 and ...



4 and ...



0 and ...



1 and ...



5 and ...



YEAR 2

Calculation Strategies

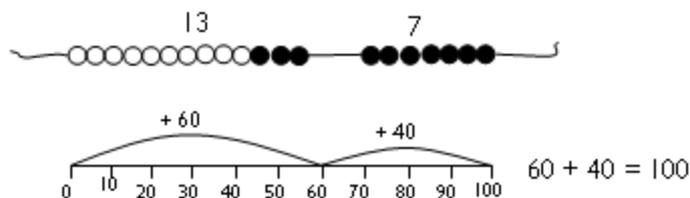
Number Stories

There are 50 people on the bus 16 more get on how many altogether?



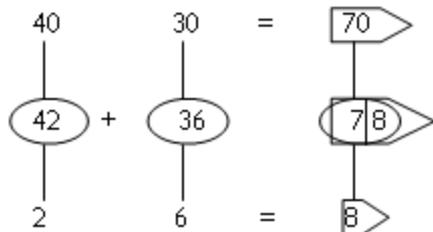
Number bonds

Use knowledge of number bonds to 10 to help with bonds to 20 and multiples of 10 to 100

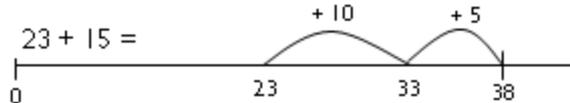
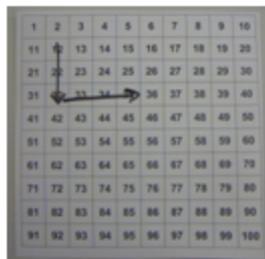


Addition as partitioning and recombining:

$42 + 36 =$



$12 + 23 = 12 + 20 + 3$





Let's have a go...

$6+3$

$6-2$

$9+3$

$16-2$

$12+5$

$12-3$

$18+3$

$25-3$

$22+5$

$22-4$

$29+3$

$31-4$



Home learning

- Home Learning - 1 activity per week (often including a mental challenge).
- We always want this to be games based as much as possible so that you have fun with your child.
- Please add a comment so that we know how you/ your child found it.
- Create maths resource box for home.



How wide? How far?



shopping, weighing,
measuring (eating!)



How you can help at home

Little and often

- secure understanding
- Counting forwards and backward
- + - 2 + -10
- support in learning number facts
- applying knowledge of number facts
- encourage children to explain their methods/
procedures and reasoning
- explore number in the world around us
 - time
 - money
 - measure
 - data



REAL money – estimating, counting,
number operations, spending!



Who's the tallest?
Who's the highest?



Chinese Bamboo



With a new foreword by
a new introduction

When you plant it, nothing happens in the first year, nor in the second year or the third or the fourth years. You don't even see a single green shoot.

And yet, in the fifth year, in a space of just six weeks, the bamboo will grow nine feet high.

The question is, did it grow nine feet in six weeks or in five years?



Questions...



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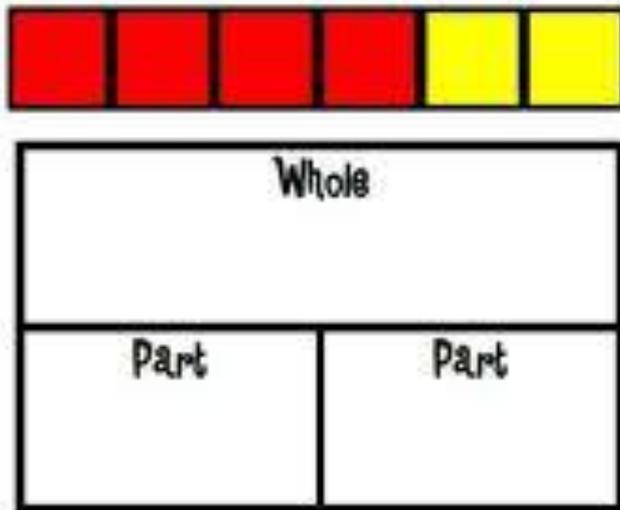


The aims of the new National Curriculum	How <i>Numicon</i> delivers these aims:
<p><i>'Children become fluent in the fundamentals of mathematics so that they are efficient in using and selecting the appropriate written algorithms and mental methods, underpinned by mathematical concepts.'</i></p>	<p><i>Numicon develops fluency by using a visual, practical base to develop conceptual understanding.</i></p>
<p><i>'Children can solve problems by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios.'</i></p>	<p><i>Numicon develops children into confident problem-solvers, using real-life contexts that give every activity a purpose.</i></p>
<p><i>'Children can reason mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.'</i></p>	<p><i>Numicon helps children to reason mathematically by encouraging them to notice relationships and make generalizations through the use of concrete objects.</i></p>



- The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop **confidence** and **mental fluency** with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with **practical resources** [for example, concrete objects and measuring tools].
- At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using 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. An emphasis on practice at this early stage will aid fluency.
- Pupils should **read and spell mathematical vocabulary**, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Part-part whole



Fact Family

$$\underline{\quad} + \underline{\quad} = \square$$

$$\underline{\quad} + \underline{\quad} = \square$$

$$\square - \underline{\quad} = \underline{\quad}$$

$$\square - \underline{\quad} = \underline{\quad}$$