Maths At Europa

YEAR 1 - YEAR 2
Introduction to Teaching and Learning

Plan for session:

Approach to maths at Europa

Overview of learning that has happened in Year 1

Expectation of what the children will cover in Year 2

Throughout it all to give models and images used to support teaching and learning.

Mastery in Maths

At Europa we believe children's chances of success are maximised if they develop deep and lasting understanding of mathematical procedures and concepts.

We deliver lessons based around the most recent pedagogy in mathematics - focusing on a Mastery Approach which ensures a concrete - pictorial - abstract exploration of number. This leads to a familiarity and understanding with the base ten system and a basic fluency which should enable success in their mathematical future.

The curriculum gives access to concepts for all, with an acquisition of depth rather than acceleration through content.

It allows for Mathematical talk, Exploration and Problem Solving & Reasoning to take place.

# Mastery in Maths / Mastering Number / Bilingual Teaching

As we immerse children in two languages throughout their school life, we incorporate the Maths Mastery theory and practice but also build in teaching and learning styles that mirror national syllabi. This is integrated with English National Curriculum expectations for assessment and of course ensuring that we teach to the children in front of us.

The MN Programme is a new national programme based on research into what is important in early maths education. 'Number sense' includes lots of things; the children may be able to calculate using bigger numbers but we purposefully focus on smaller numbers throughout Year 1 and Year 2 so that the children can develop a deep understanding of numbers to develop that strong number sense. To have a really good foundation to build on, the smaller numbers are so important.

Recognising small numbers of objects and making their own connections
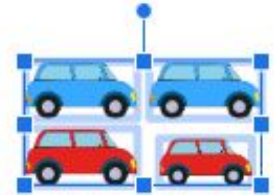
Know different ways to 'make' (compose) a number

NCETM
NATIONAL CENTRE for EXCELLENCE
in the TEACHING of MATHEMATICS

In KS1

Children are being taught:

- Count up to 100 and put numbers up to 100 in the correct order

- Addition and subtraction

- Multiplication and Division

- Recognise odd and even numbers

- Name 2D and 3D shapes

- Measure the lengths and weights of objects

-Maths Reasoning - Explain why they think something is correct or incorrect

The Importance of Mastering 1 - 10

Deeper understanding helps children in their learning later on in school. Children who develop good number sense by the end of Key Stage One are much more confident and capable in maths later on.

Spend time with your children ensuring they know all the ways to compose and decompose (make and split) the numbers 1-10 and then link it to equalling 20 and then how to make pairs to 100.

How does knowing how numbers are 'made' help children?

I know that 8 is made of 5 and 3 so I will also know...

$5 + 3 = 8$

$50 + 30 = 80$

$500 + 300 = 800$

$8 - 3 = 5$

$80 - 30 = 50$

$0.5 + 0.3 = 0.8$

$0.8 - 0.3 = 0.5$

NUMBER SENSE

The full set of addition facts is here:

+	0	1	2	3	4	5	6	7	8	9	10
0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9	0+10
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	1+10
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9	2+10
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9	3+10
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9	4+10
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9	5+10
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9	6+10
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9	7+10
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9	8+10
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9	9+10
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9	10+10

Y1 facts
Y2 facts
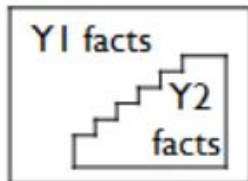
From number bonds of all numbers from 2 - 10 we can then start to build a fluency in addition and subtraction facts.

A defined set of addition and subtraction facts builds the basis of all addition calculations.

If children are not fluent in these facts then when solving more complex problems the working memory is taken up by calculating basic facts and children have less working memory to focus on solving the problem.

Building on firm foundations - Place Value

Addition of two digit numbers.

In reception, children become fluent in working with totals to 10 (though not presented as number sentences), e.g. "Show me 5 on your hands. Now show me 5 in a different way."

Year 1 this would have been developed from concrete and pictorial to the abstract and then extended to 20.

If secure in tens and ones can rely on the single digits for simple 2 digit addition and subtraction.

Especially when adding / subtracting multiples of ten. 47 + 10 or 47 + 20 or 47 +50

83 - 10, 83 - 20, 83 - 70.

Practice counting **up and down** with how many tens and the ones to emphasise the order in which we write the digits and to make connections with the base 10 system. Can use a hundred square.

To extend this to embed an appreciation of the value of ones, and tens.

 63 ones is equal to 6 tens and 3 ones.

Concrete / Pictorial / Abstract

the whole
5
3 2
a part a part

In Year 1 they would have been introduced to the part/part whole model.
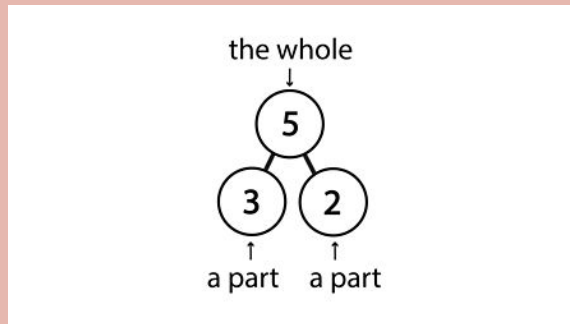
In Year 2 this is still used, but the children often use Dienes to represent 10s and 1s. This means that they can rely on the pictorial representation of the concrete equipment when calculating.
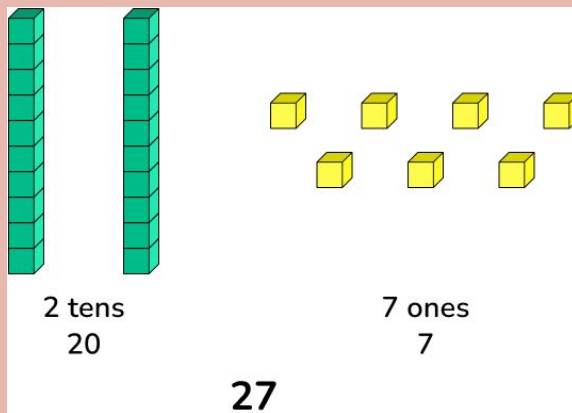
34 + 25 =

27 - 16 =

Then extending to exchange

46 + 27 =

43 - 25 =

2 tens
20

7 ones
7

27

N.b. equals / = often shown other way round and by year 3 with a calculation on both sides.

Addition / Subtraction - efficient methods & inverse

Extends into crossing tens barrier.

Children will be taught strategies to solve these facts.

They will be explicitly taught that a good strategy to solve 6+7 is to double 6 and add 1 more.

To solve 16 + 7 might be more efficient to do 16 + 4 +3 ;

but this is only possible if they possess the knowledge and automaticity that the pair with 16 to get to the next multiple of ten is 4 and the recall that 7 can be made of 4 and 3. We do an enormous amount on partitioning single digit numbers all through Year 1 but recap is necessary.

i.e. it requires a lot of pre knowledge that is embedded and has fluency.

The more firm the basics the easier calculations like 43 - 38 are.

What method would you use and why?

Multiplication and Division

Learning 2,, 5 and 10 times tables in Year 1, skip counting, tables style learning and fact family relationships.

Extending in Year 2 to use 2, 5 and 10 times tables in multiplication and division calculations and word problems. Meaning of course that they are learning about other tables due to commutativity law. Also reinforcing understanding of multiplication as repeated addition.

Arrays - for both multiplication and division.
• Make equal groups – sharing
• Make equal groups - grouping
• Divide by 2, 5 and 10

Recap Doubling and halving (as relates to multiply by 2 and divide by 2

Problem Solving and Reasoning
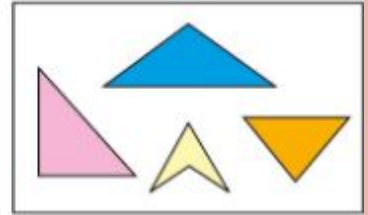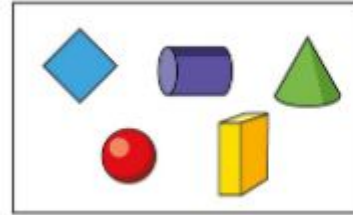
Odd one out

Power of mistakes

What method?

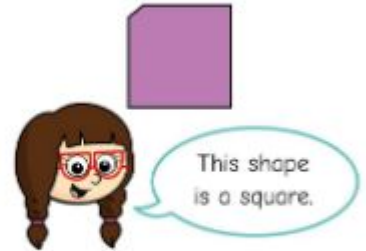Why? Support or Challenge? Show me in another way.

Which shape is the odd one out in each set?

How do you know?

Kim is working out the missing number.

43 + 5 = 42 + ☐

Jo is looking at this shape.

This shape is a square.

Do you agree with Jo?

Why?

At home

Revision of basic addition and subtraction facts

TIME

Measures

In school

Time to help?

Any Questions?

Lesson

Time -
Get some who are present to take part in a maths session
5 min intro nice and nasty game
10 minutes: use knowledge of doubling, halving and the two times table to solve problems
End with guess my number