Maths At Europa

YEAR 4 - YEAR 5
Introduction to Teaching and Learning

Plan for session:

Approach to maths at Europa

Overview of learning in maths.

Expectation of what the children will cover in Year 5

Throughout there will be guidance on how to support at home.

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.

Legacy Mathematics/ Mastery in Maths / Bilingual Teaching

As a former European School we followed the European maths curriculum and used their Intermath books. This had to change.

Children are immersed 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 ensuring that we teach to the children in front of us.

Your children were at home for large parts of Year 1 and Year 2 and as such may have missed the foundations of mathematics.

The approach to maths Teaching and Learning goes through the Concrete- Pictorial - Abstract cycle and Year 4 children may have missed out on the these firm foundations.

In Lower KS2

- Count up to 1000 and put numbers up to 1000 in the correct order

- Addition and subtraction

- Multiplication and Division

- Fractions

- Geometry

- Measurement

- Statistics

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

THESE TOPICS ARE NOW REPEATED AND EXTENDED UPON IN UPPER KS2.

There are a few new topics as well (mostly in Year 6)

The Importance of Mastering 1 - 10

Deeper understanding helps children in their learning later on in school.

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, 100, 1000.

Place Value

Building on KS1 understanding of 0-9; moved into 4 digit numbers and then in Year 5 they will be recognising, writing, ordering and comparing numbers up to 1 000 000.

The understanding of Place Value is reinforced by counting and calculating forwards and backwards in steps of powers of 10.

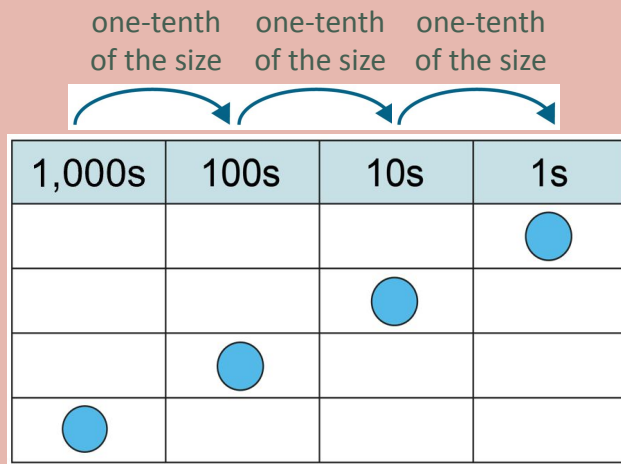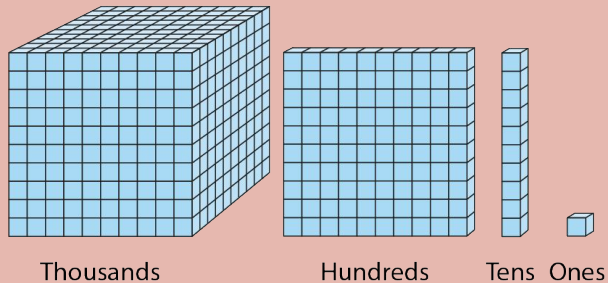E.g. start at 460 and count up in 100s

Start at 1270 count backwards in 100s

Similar for 10s, 1000s and 10 000s

This extends in to negative numbers too.

Rounding in Year 4 was to nearest 10 and 100 in Year 5 it is repeated, recapped and extended to nearest 1000, 10 000 and 100 000

Place Value used for addition / subtraction and scaling Y4

Thousands   Hundreds   Tens Ones

one-tenth
of the size

one-tenth
of the size

one-tenth
of the size

1,000s	100s	10s	1s
			●
		●	
	●		
●			

ten
times
the size

ten
times
the size

ten
times
the size

11
hundred

6
hundred

5
hundred
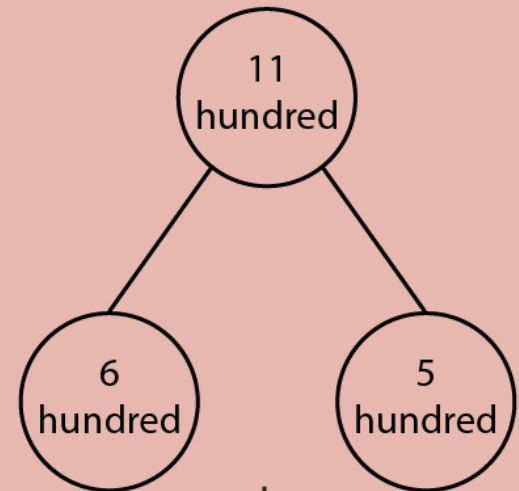
*100 tens are equivalent to
1 thousand.*

0   100   200   300   400   500   600   700   800   900   1000

2,815

0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000 9,000 10,000
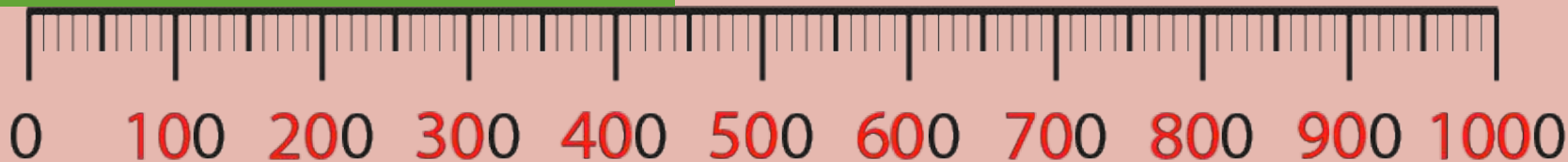
previous multiple of 1,000

next multiple of 1,000

2,000 < 2,815 < 3,000

Addition / Subtraction - efficient methods & inverse

Children are introduced to formal column addition and subtraction and will use this method for 5 digit numbers with regrouping and exchanges.

To be able to do this effectively the children need to have additive reasoning skills with an ability to cross over tens, hundreds, thousands. The complete understanding and fluency within the base ten system allows for connections to be made and a deep understanding of the method not just following the process.

Rounding for estimation of answers gives a deeper understanding of the structures involved.

It is essential that children understand when the columnar structure is not appropriate and that they can utilise more efficient methods.

Understanding and utilising inverse operations.

What method would you use and why?

18 659 – 9,889 =

17 483 + 12 111 =

16 000 - 2648 =

14230 + 500 =

I think of a number.
After I add 4,251 and subtract 523, my number is 9,854.
What was my original number?

Multiplication and Division

Learning times tables in Year 4, skip counting, tables style learning and fact family relationships, corresponding division facts.

Revisited and used Arrays - for both multiplication and division.

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

Multiply and divide by powers of ten (easy one to practice at home) continue to emphasise the scaling concept.

In Year 4 the children were introduced to the concept and language of factors and multiples this learning is consolidated and extended into common multiples and common factors.

Introduced to square numbers (underpinned by models of arrays and area work) and cubed numbers.

Fractions

Lower KS2 concentrated on the understanding of fractions.

Taking a whole and separating it into EQUAL parts (same as division).

The numerator shows you how many of those equal parts that you have.

If not a unit fractions find the total of each EQUAL part and multiply by the numerator. Non unit fractions of whole numbers are just the same as a two part problem.

Adding & subtracting like fractions in Year 3 and Year 4 but bridging whole numbers in Year 4. Also subtracting fractions from whole amounts.

Mixed numbers and improper fractions in Y4.

Common equivalent fractions.

Possibly moving into tenths and decimals.

YEAR 5

Using common factors and multiples: convert fractions; including tenths and hundredths.

Further comparing of fractions; including non-like fractions (where denominators are all multiples of the same number), improper fractions and mixed numbers.

Adding and subtracting fractions where conversion is needed first.e.g ¾ + ⅝ and then extending to simplifying the answer.

Multiply proper fractions by mixed and whole numbers - supported by models and images.
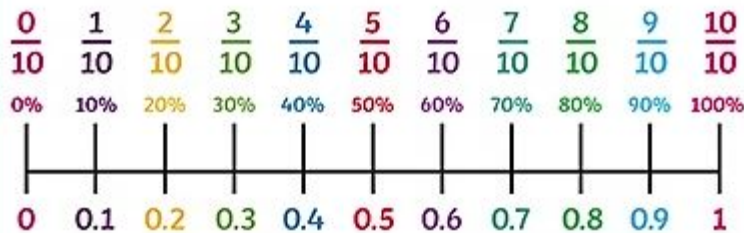
Decimals and Percentages

Decimals may have been introduced in Year 4 but this year there is an emphasis on understanding decimals and the interconnectedness of fractions, decimals and percentages.

Including reading, writing, ordering and comparing decimals up to three decimal places.

Reading and writing decimal numbers as fractions;

Calculations and rounding with decimals.
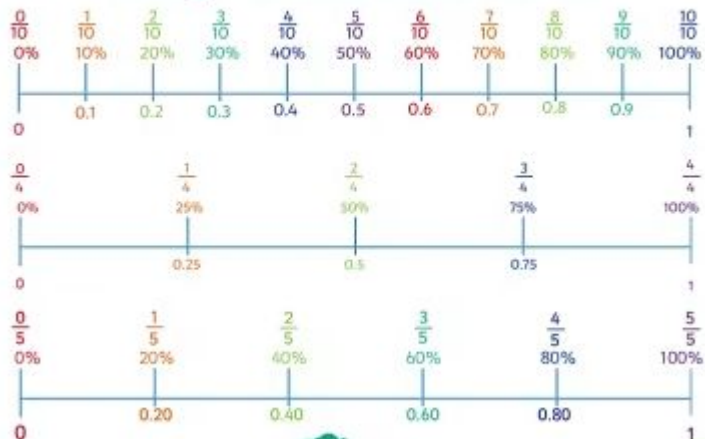
Fractions, Decimals and Percentages

⬤ = 1	= 1	= 100%
= ½	= 0.5	= 50%
= ⅓	= 0.33	= 33.3%
= ¼	= 0.25	= 25%
= ⅕	= 0.2	= 20%
= ⅛	= 0.125	= 12.5%
= ¹⁄₁₀	= 0.1	= 10%
= ¹⁄₁₀₀	= 0.01	= 1%

$\frac{0}{10}$ $\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10}$ $\frac{4}{10}$ $\frac{5}{10}$ $\frac{6}{10}$ $\frac{7}{10}$ $\frac{8}{10}$ $\frac{9}{10}$ $\frac{10}{10}$

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1

Decimal Square 0.1 to 10

0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3
3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4
4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5
5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6
6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7
7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8
8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9
9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10

Decimal Square 0.01 to 1

0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20
0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30
0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40
0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50
0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60
0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70
0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.80
0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.90
0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1

Percentages Decimals and Fractions Numberlines

$\frac{0}{10}$ $\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10}$ $\frac{4}{10}$ $\frac{5}{10}$ $\frac{6}{10}$ $\frac{7}{10}$ $\frac{8}{10}$ $\frac{9}{10}$ $\frac{10}{10}$

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9

0   1

$\frac{0}{4}$ $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{4}{4}$

0% 25% 50% 75% 100%

0.25 0.5 0.75

0   1

$\frac{0}{5}$ $\frac{1}{5}$ $\frac{2}{5}$ $\frac{3}{5}$ $\frac{4}{5}$ $\frac{5}{5}$

0% 20% 40% 60% 80% 100%

0.20 0.40 0.60 0.80

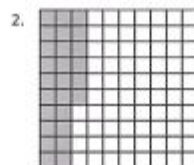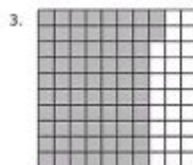0   1

Fractions: Hundredths

All the squares below have been separated into 100 equal parts. Each part is $\frac{1}{100}$. To write this as a decimal fraction you would write 0.01. For all the squares below, write the fraction shaded both as a fraction and a decimal fraction. The first one has been done for you.
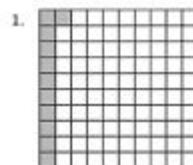
1. Fraction: $\frac{11}{100}$

   Decimal: **0.11**

2. Fraction: _____

   Decimal: _____

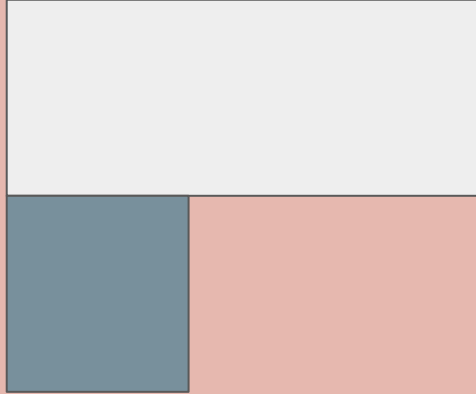3. Fraction: _____

   Decimal: _____

Measurement and Geometry

Recap Perimeter and Area
Area relates to multiplication arrays and Area of compound shapes, can be connected to multiplicative reasoning and commutativity.

Angles: ensure knowledge of angles within shapes facts and straight lines and angles around an axis.

Coordinates, Symmetry, Translation, Rotation and Reflection

Problem Solving and Reasoning

Odd one out

Power of mistakes

What method?

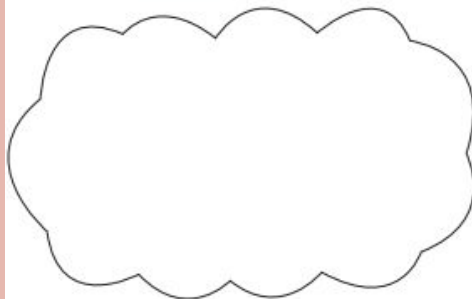Why? Support or Challenge?
Show me in another way.

Which of these calculations is the odd one out? Explain your answer.

A $121 \div \boxed{} = 11$

B $\boxed{} \times 5 = 60$

C $9 \times \boxed{} = 72$

D $\boxed{} \div 7 = 7$

Zac has 110 cubes and uses them to make 10 equal towers.

Isla has 84 cubes and uses them to make 7 equal towers.

Whose towers are tallest and by how many cubes?

$\boxed{}$'s towers are tallest by $\boxed{}$.

Captain Conjecture says, 'If you keep subtracting 3 from 397 you will eventually reach 0.'

Do you agree?
Explain your reasoning.

A 1·2 m ribbon and a 90 cm ribbon are joined by overlapping the ends and gluing them together. The total length of ribbon needs to be 195 cm long.

How much should the two pieces overlap?

Possible at home support for your children.

Consolidation of place value to 1000 possibly introducing numbers up to 1 million;

Revision of basic addition and subtraction facts - if needed;

Revision of times tables - if needed;

Consolidation of fractions - if needed;

TIME;

Measures - especially conversion;

Later in year - Decimals and Percentages;

Problem Solving and Reasoning.

BBC Bitesize is a great digital resource https://www.bbc.co.uk/bitesize/subjects/z826n39/year/zhgppg8

NRICH for problems solving https://nrich.maths.org/primary

https://mathsframe.co.uk/en/resources/category/22/most-popular

In school

Time to help?

Google form

And an offer to send problem solving and reasoning examples.

Any Questions?