White Rose MATHS

NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

Mathletics

Welcome to the KS1 Maths Parent Workshop

COOMBE HILL INFANTS' SCHOOL

Learn together, grow together

www.coombehillinfants.com

This Morning

- The Principles of Early Maths
- Our Approach at Coombe Hill Infant School
- Concrete, Pictorial, Abstract
- Manipulatives and Models
- Mastering Number (NCETM)
- Maths in School
- Maths at Home - KIRFs, Mathletics

SIX KEY AREAS OF EARLY MATHEMATICS LEARNING

Cardinality and Counting

Understanding that the cardinal value of a number refers to the quantity, or 'howmanyness' of things it represents

Comparison

Understanding that comparing numbers involves knowing which numbers are worth more or less than each other

Composition

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

Pattern

Looking for and finding patterns helps children notice and understand mathematical relationships

Shape and Space

Understanding what happens when shapes move, or combine with other shapes, helps develop wider mathematical thinking

Measures

Comparing different aspects such as length, weight and volume, as a preliminary to using units to compare later

Early Maths

NCETM link

Plus+
Subitising skills are key to developing number sense and are a big part of our early years Maths curriculum.

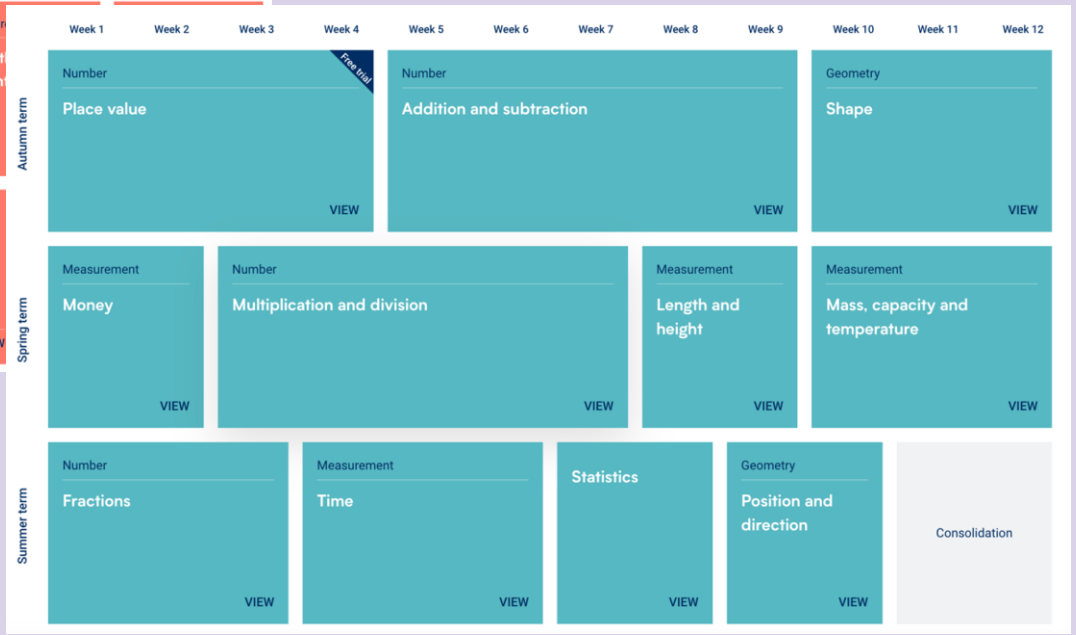
Our Approach

Children’s chances of success are maximised if they develop deep and lasting understanding of mathematical procedures and concepts. (NCETM)

We teach for mastery by following a small steps curriculum.

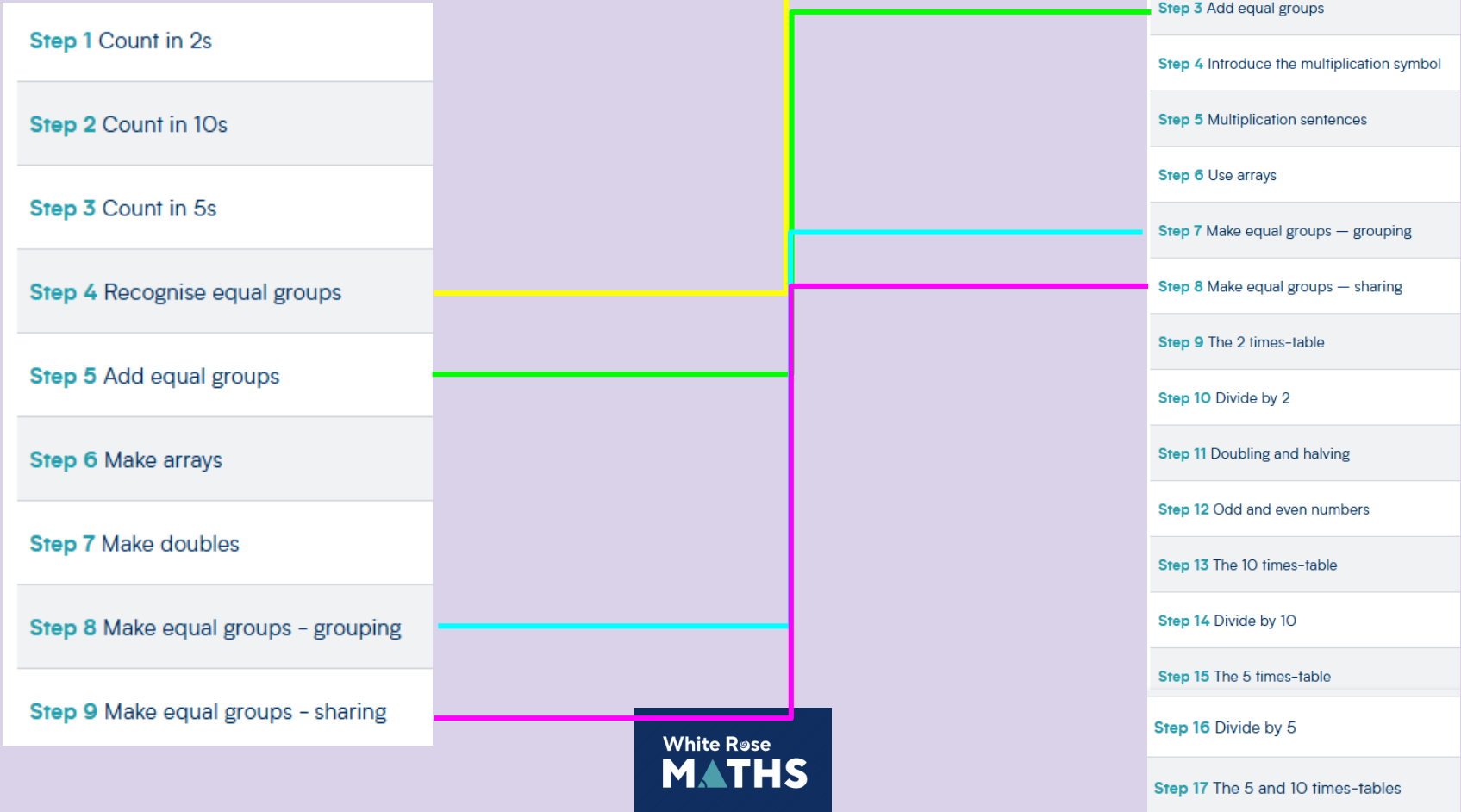
What We Teach

Curriculum content is arranged in blocks across the year.
Each block is divided into small steps of learning.



White Rose MATHS

Year 1 Multiplication & Division Year 2



Maths Curriculum Map (following White rose)

Spring Term	Skills to be covered What should the children be able to do?	Knowledge to be covered What should the children know? (including KIRFs)	Vocabulary
Place Value Numbers to 20	• Count to and across a hundred, forwards and backwards beginning at zero, 1 or from any given number. • Identify and represent numbers using objects, pictorial representations including the number line and use the language of equal to,more than or less than, fewer, most, least. • Count, read and write numbers to 100 in numerals. Count in multiples of 2, 5 and 10. • Read and write numbers to 20 in numerals and words. • Given a number, identify one more or one less.	Know a number one more or one less than any number within 20.	zero, one, two, three to twenty part, whole equal to/is the same as more, most, greater than less than, least, fewer ones, tens group compare value odd, even number line, number track
Addition and Subtraction	• Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • Add and subtract 1-digit and 2-digit numbers to 20, including zero. • Represent and use number bonds and related subtraction facts within 20. • Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? - 9	Know number bonds to 10 and extend to 20	altogether, total addition, add, plus subtraction, subtract, take away, minus equal to/is the same as number bonds double, near double first, then, now How many more? What's the difference?
Place Value Numbers to 50	• Count to and across a hundred, forwards and backwards beginning at zero, 1 or from any given number. • Identify and represent numbers using objects, pictorial representations including the number line and use the language of equal to,more than or less than, fewer, most, least. • Count, read and write numbers to 100 in numerals. Count in multiples of 2, 5 and 10. • Given a number, identify one more or one less.	Know and recite number names to 50. Know the number that is one more or less than any given number to 50. Know doubles of numbers to double 10.	part, whole partition, combine equal to/is the same as more, most, greater than less than, least, fewer ones, tens groups, compare value number line, number track
Measure Length and Height	• Compare, describe and solve practical problems for length and height, mass/weight; capacity and volume; time. • Measure and begin to record, length and height; mass/weight; capacity and volume; time	Know that there are 100 cm in 1m	compare: longer, shorter taller, wider measure unit of measurement centimetres metres ___ is taller than___ ___ is shorter than__
Measure Mass and Capacity	• Compare, describe and solve practical problems for length and height, mass/weight; capacity and volume; time. • Measure and begin to record, length and height; mass/weight; capacity and volume; time		compare: lighter than, lightest, heavier than, heaviest measure unit grams kilograms full, half, full,empty container ___holds more than __ ___ holds less than

More information about the blocks of learning is available on our website.

You will also find a vocabulary list for each topic so that you can support your child in learning the subject specific terminology.

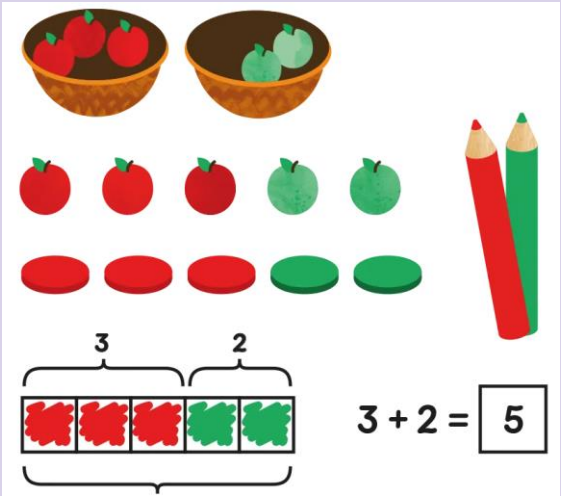
How We Teach - CPA Approach

We use a concrete, pictorial, abstract approach to support learning and progression.

CONCRETE - physical resources (Doing)

PICTORIAL - visual models (Seeing)

ABSTRACT - written methods and calculations (Symbolic)

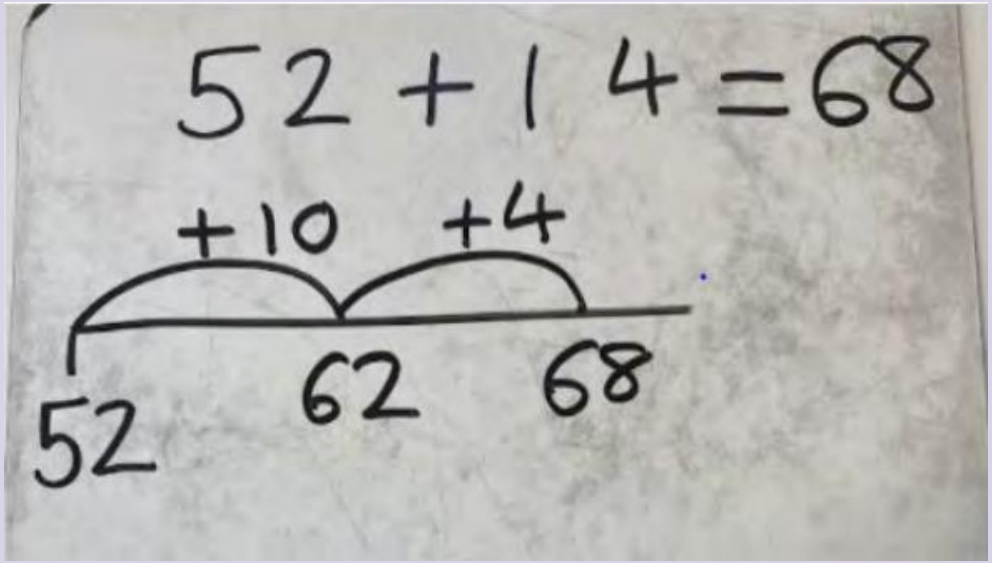


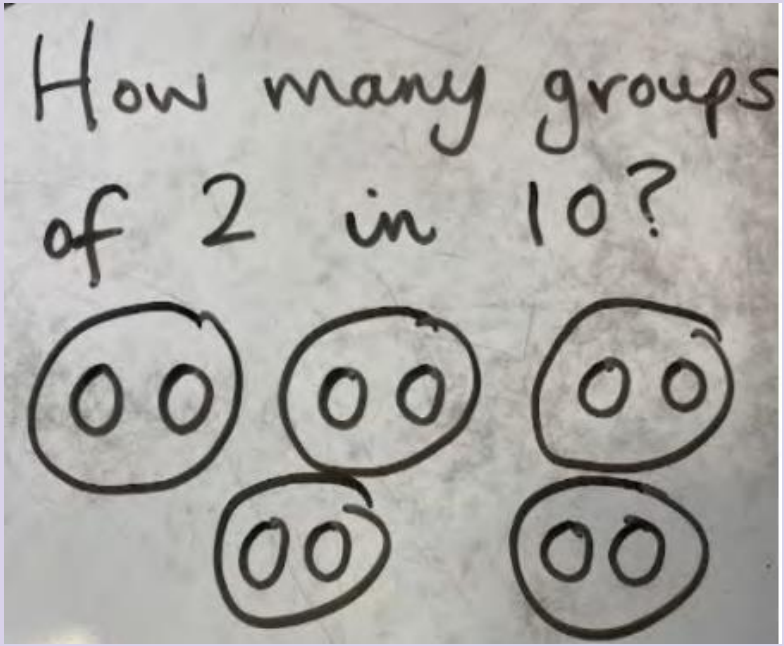
Concrete

Using physical resources to support teaching and learning of key concepts.

Pictorial

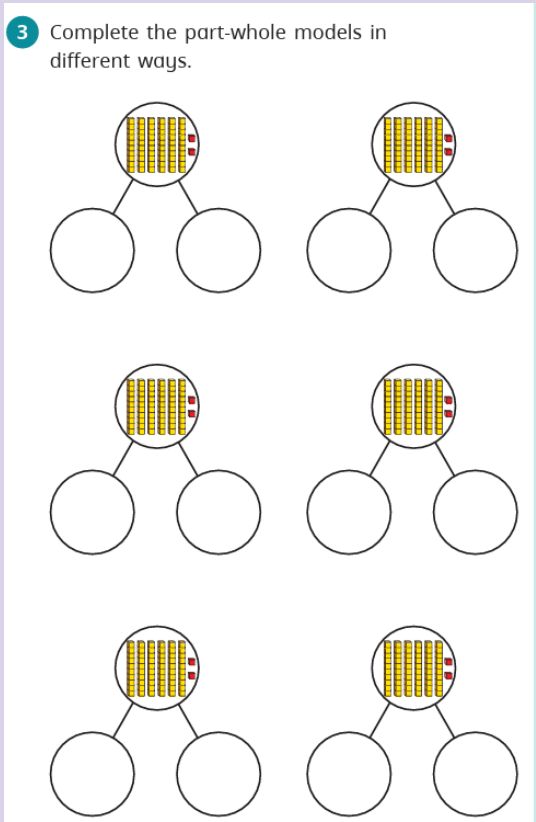
Using models and representations to support understanding

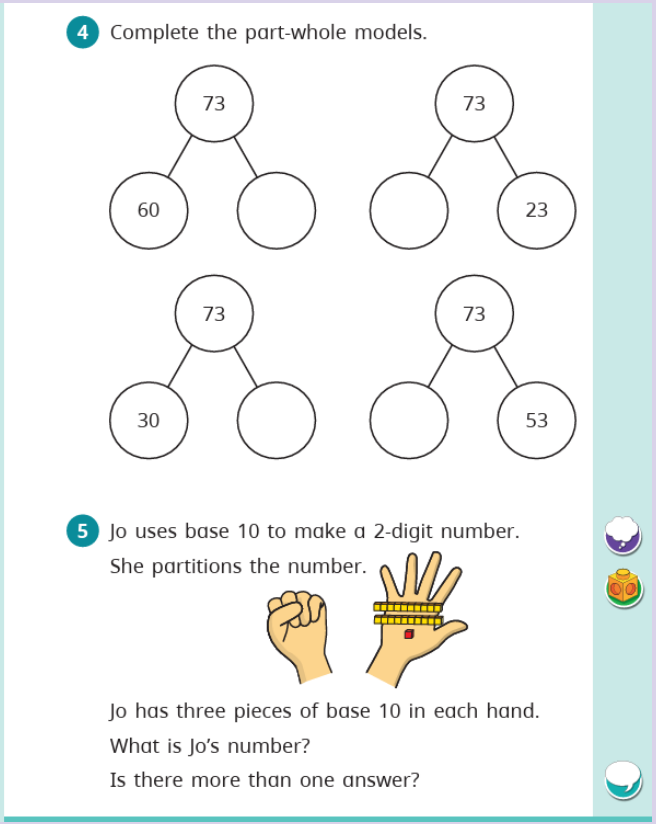




….pictorial recording is key to ensuring that children can make the link between a concrete resource and abstract notation. Without it, children can find actually visualising a problem difficult.

Abstract: in jotters or using scaffolds

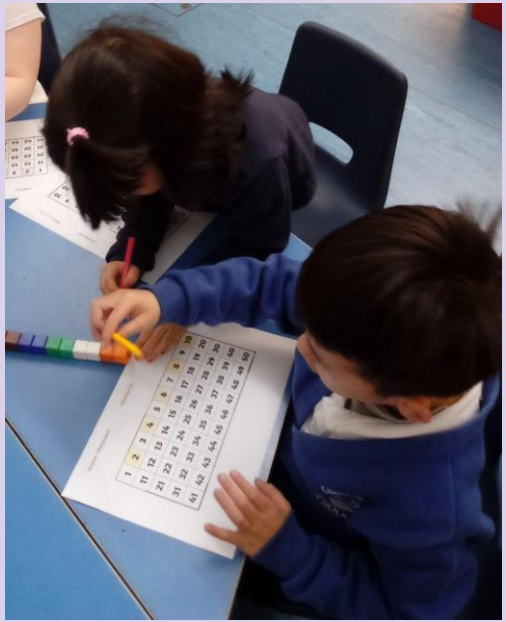


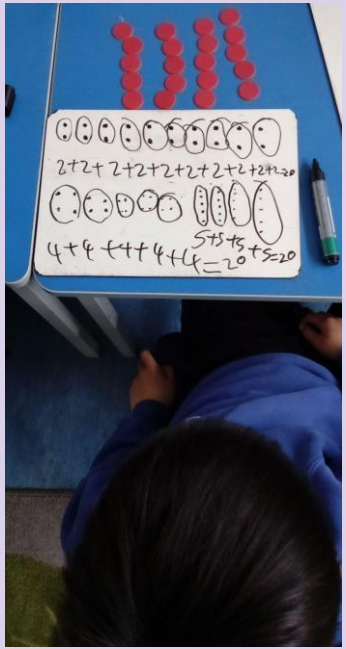


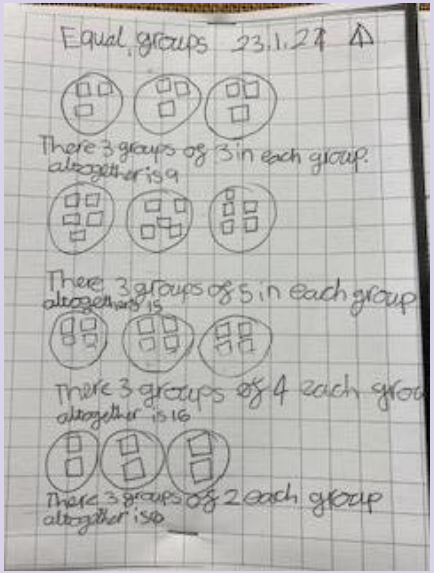
CPA at work……..

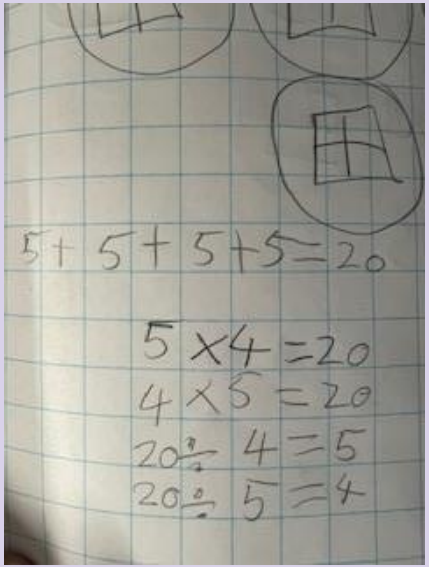
Multiplication and Division

Year 2





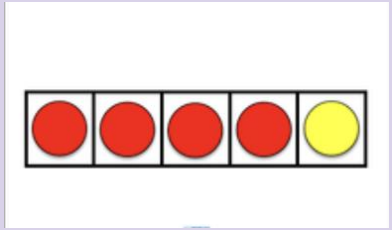


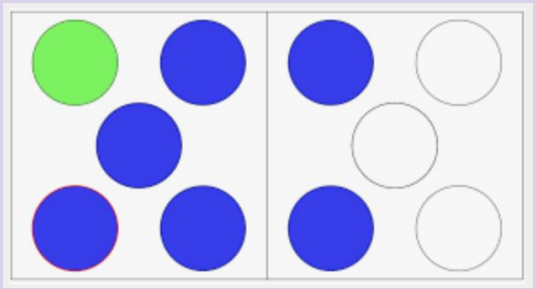


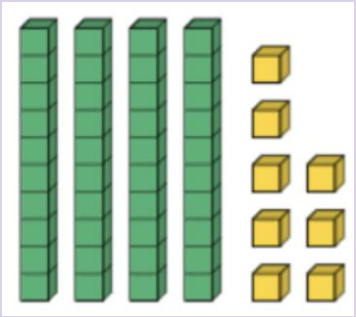
Year 1

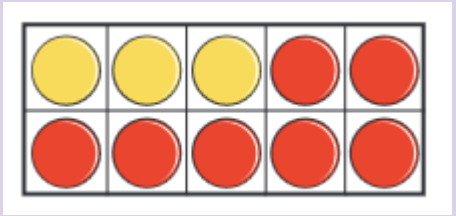
Manipulatives…

‘Objects that can be handled and moved, and are used to develop understanding of a mathematical situation’.

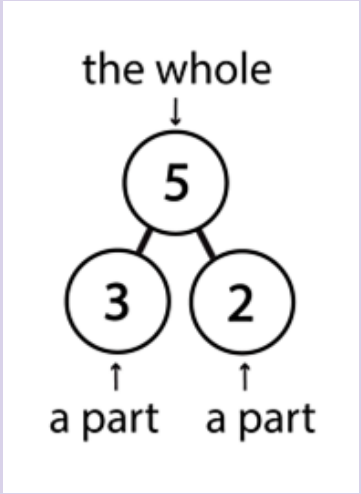




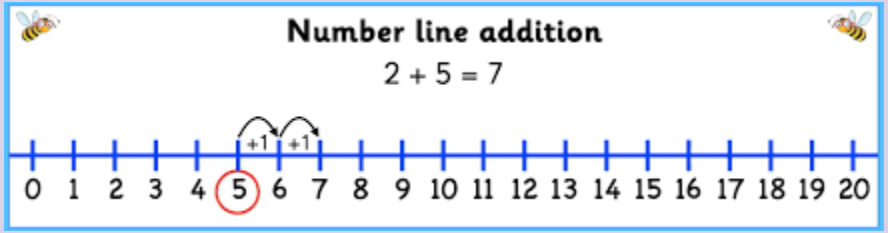


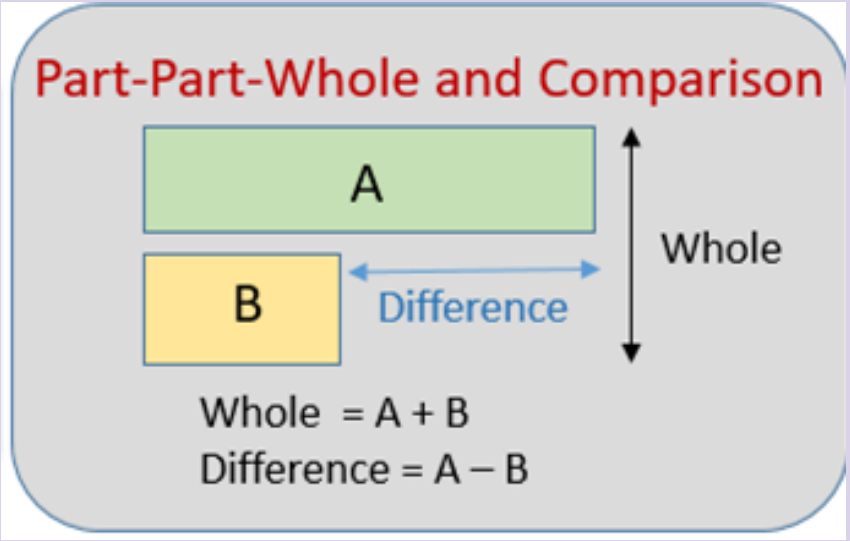


..and Models



Tens	Ones

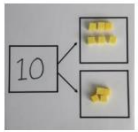
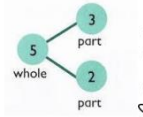
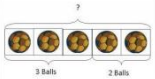
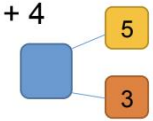
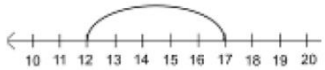




Calculation Policy

Progression in Calculations

Addition

Objective and Strategies	Concrete	Pictorial	Abstract
Combining two parts to make a whole: part-whole model	   Use cubes to add two numbers together as a group or in a bar. 	   Use pictures to add two numbers together as a group or in a bar. 	4 + 3 = 7 10= 6 + 4  Use the part-part whole diagram as shown above to move into the abstract.
Starting at the bigger number and counting on	 Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.	12 + 5 = 17  Start at the larger number on the number line and count on in ones or in one jump to find the answer.	5 + 12 = 17 Place the larger number in your head and count on the smaller number to find your answer.

This can be found on our website.

Maths in School

Children in Years 1 and 2 have a Maths input daily.

Lessons throughout the week will include elements of fluency, reasoning and problem solving.

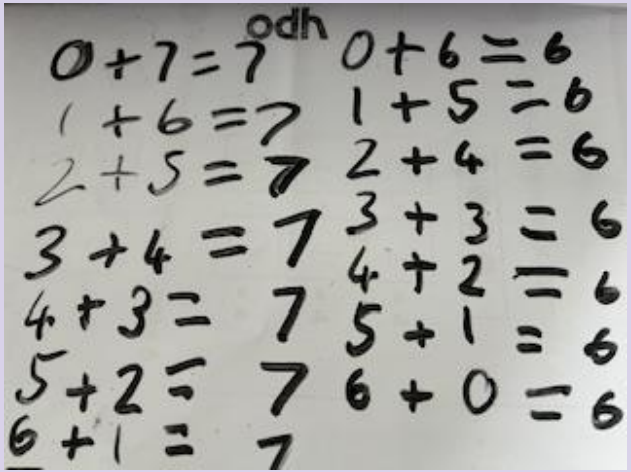
Fluency: knowing key facts and being able to recall them quickly and accurately.

Reasoning: applying logical thinking, being able to explain answers

Problem Solving: applying knowledge and skills.

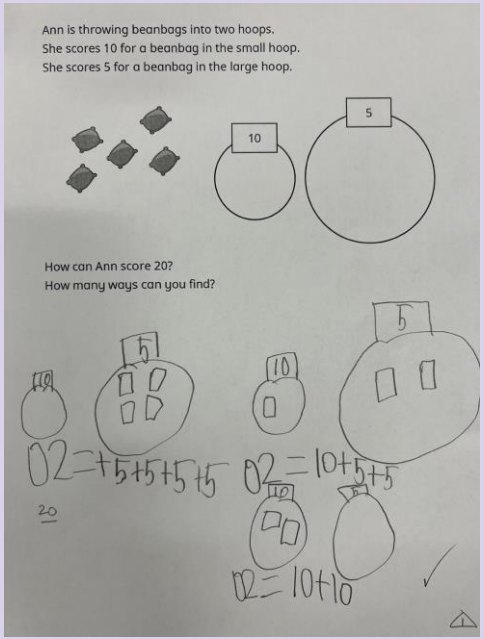
Fluency, Reasoning and Problem Solving

What might it look like?



whiteboard fluency work- practising number bonds

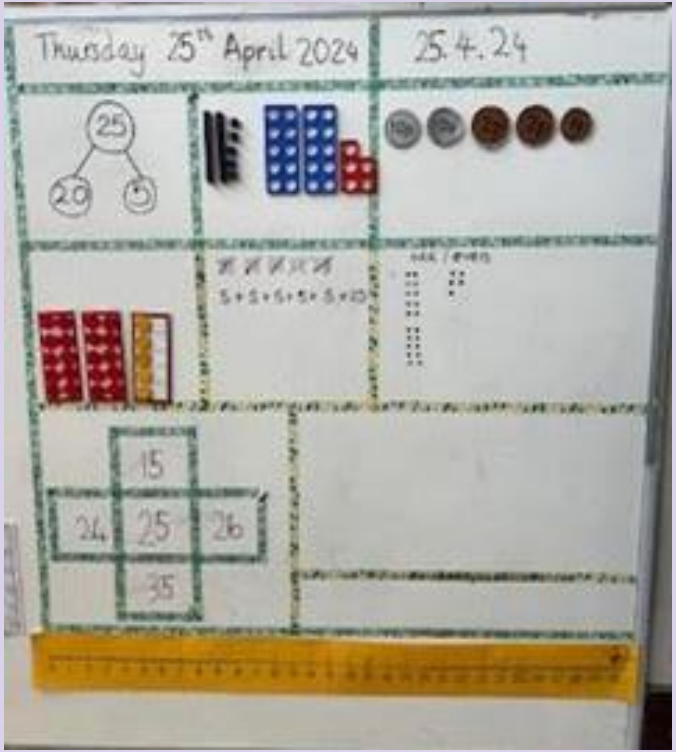
whole class reasoning and problem solving



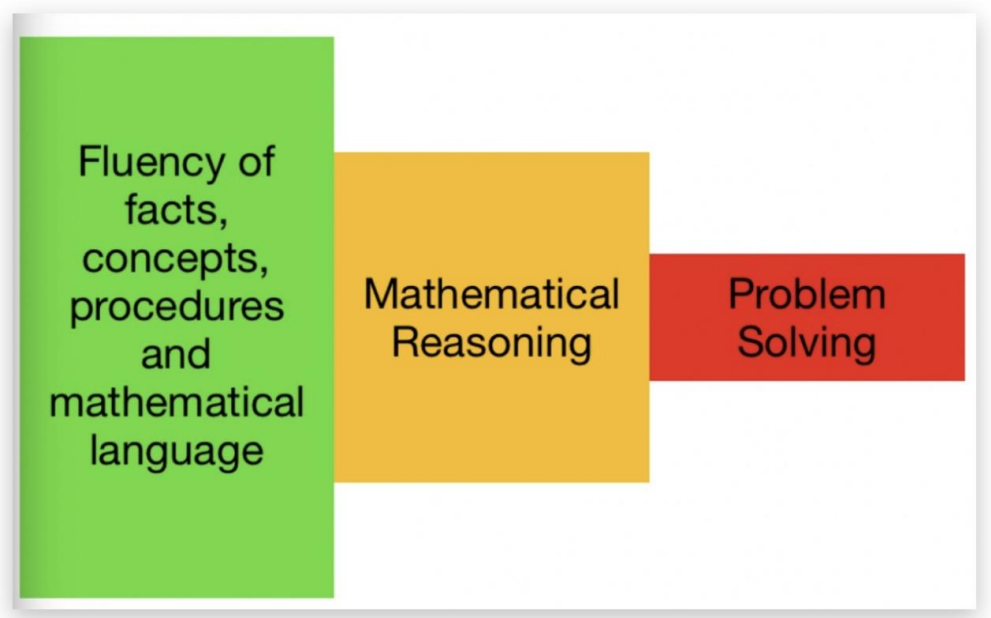
applying knowledge and skills to problems solving.

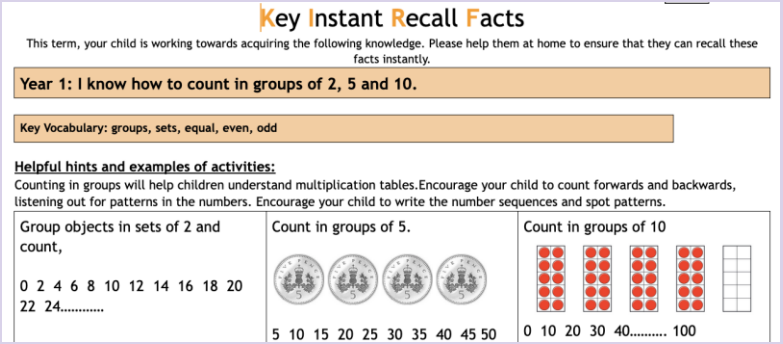
Daily Routines

Maths Board



Weather Report - reading a scale





Key Instant Recall Facts

This term, your child is working towards acquiring the following knowledge. Please help them at home to ensure that they can recall these facts instantly.

Year 1: I know how to count in groups of 2, 5 and 10.

Key Vocabulary: groups, sets, equal, even, odd

Helpful hints and examples of activities:

Counting in groups will help children understand multiplication tables.Encourage your child to count forwards and backwards, listening out for patterns in the numbers. Encourage your child to write the number sequences and spot patterns.

Group objects in sets of 2 and count,	Count in groups of 5.	Count in groups of 10
0 2 4 6 8 10 12 14 16 18 20 22 24.....	5 10 15 20 25 30 35 40 45 50	0 10 20 30 40..... 100

‘Knowing’ key number facts (KIRFs) frees up the working memory to solve the problem.

‘fluency is not something to be rushed through to get to the ‘problem solving’ stage but is rather the foundation of problem solving.’ (Third Space Learning)

Mastering Number

Year 2

Term 1

Week 9

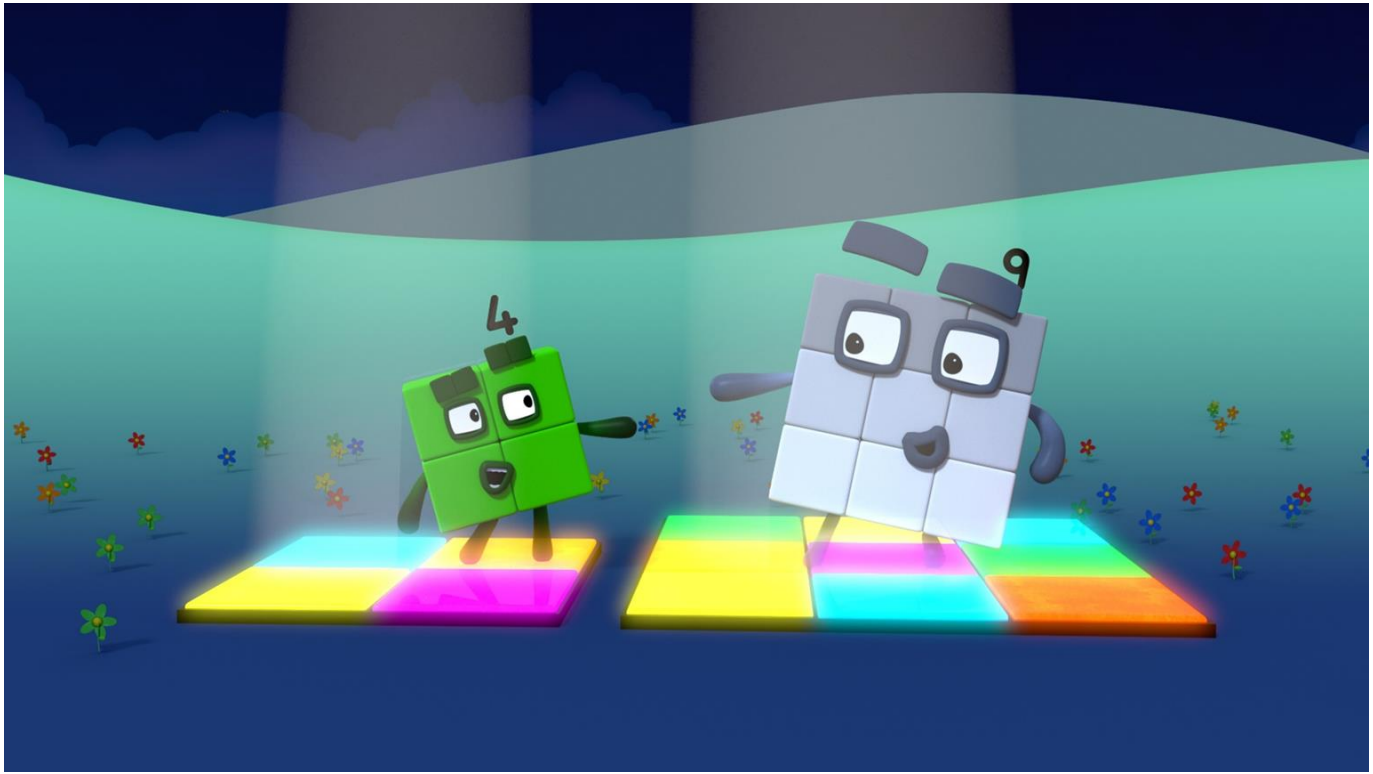
Focus: Composition

NCETM

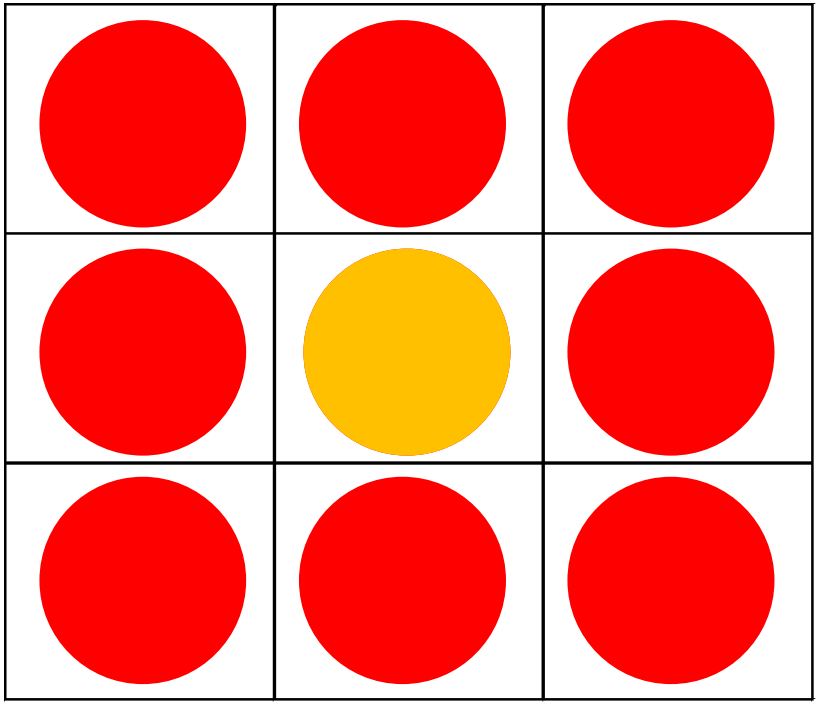
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

Numberblocks

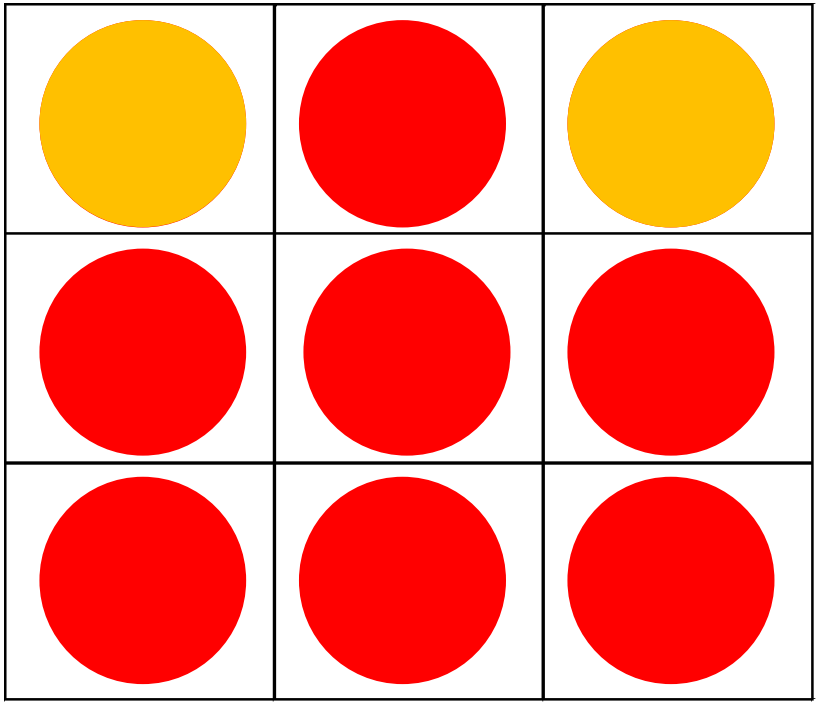
Series 2, Episode 4: Nine



Describe where 9 is on a number line in relation to 5 and 10.



9 is made of _____ and _____ ;
_____ and _____ make 9.



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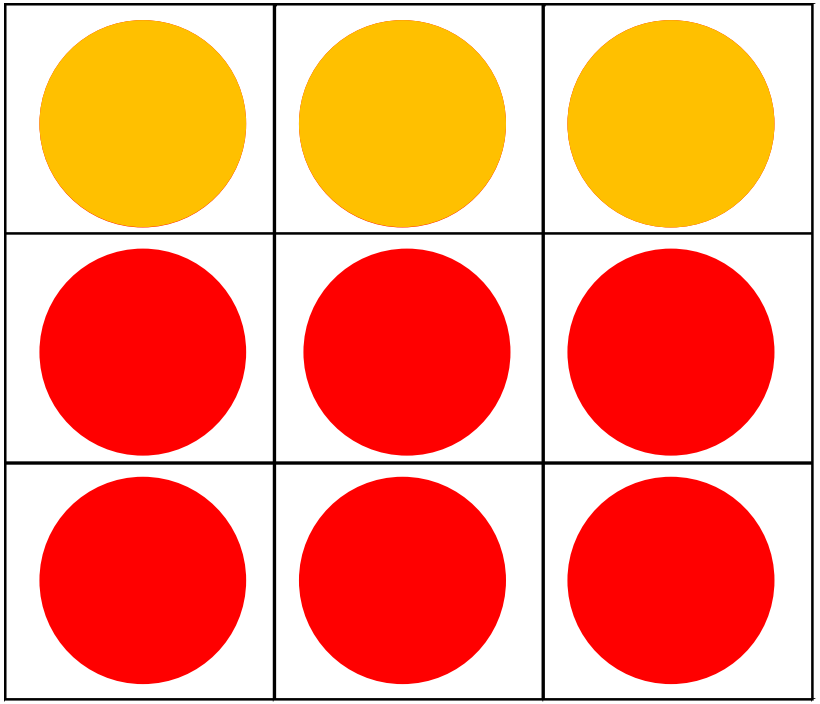

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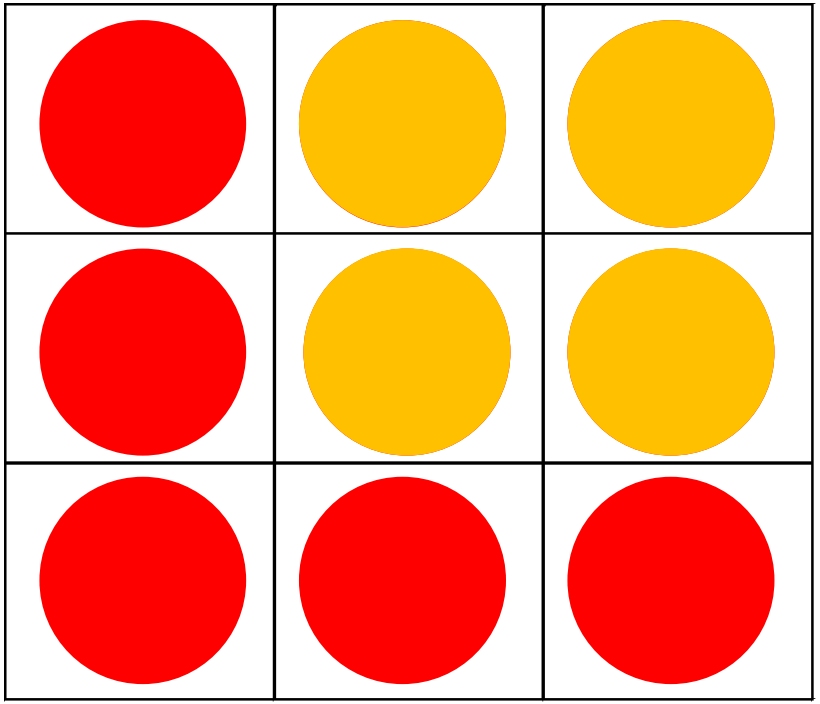

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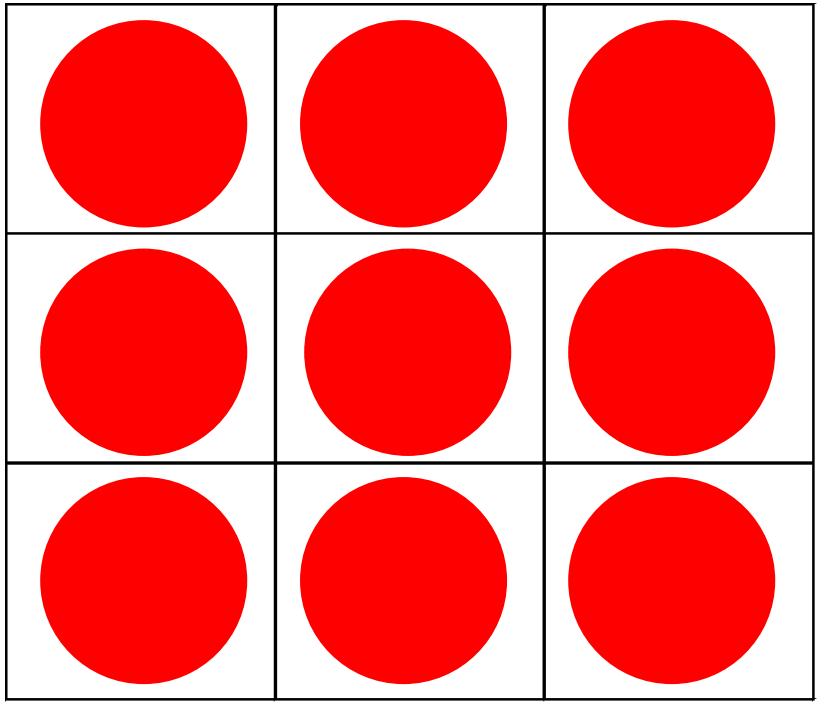

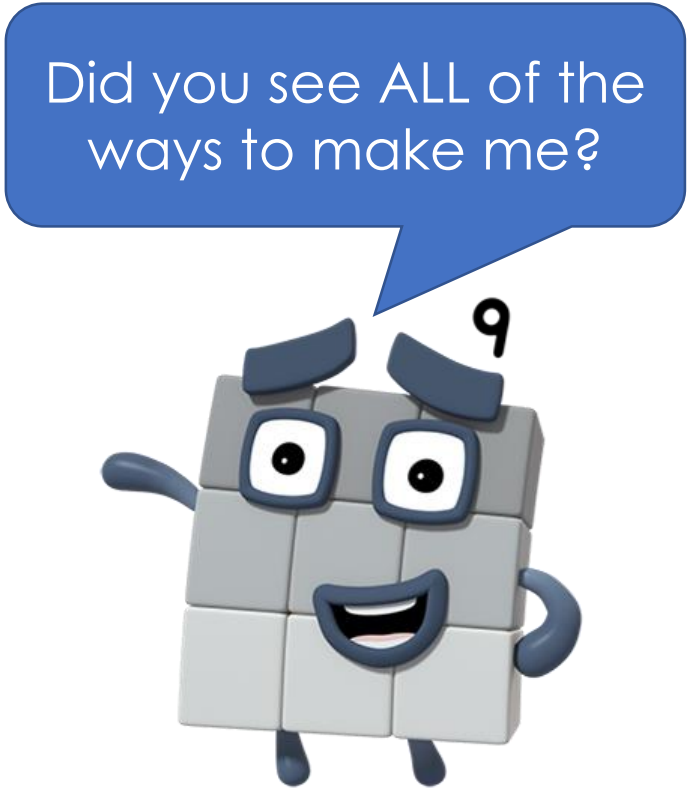

Maths at Home

Check Google Classroom each Friday for updates on weekly teaching and learning.

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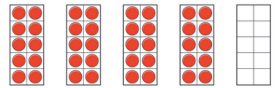
0 2 4 6 8 10 12 14 16 18 20 22 24.....	 5 10 15 20 25 30 35 40 45 50	 0 10 20 30 40..... 100

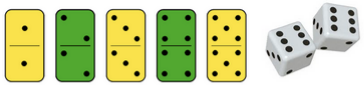
Key Instant Recall Facts

This term, your child is working towards acquiring the following knowledge. Please help them at home to ensure that they can recall these facts instant

I know doubles to double 25 and the corresponding halves.

Key Vocabulary: double , half, equal groups, divide, inverse

Children should know that the word double means two the same. Look for doubles in real life eg. dominoes and dice



They should already be able to recall doubles up to and including: Double 10 is 20 10 + 10 = 20

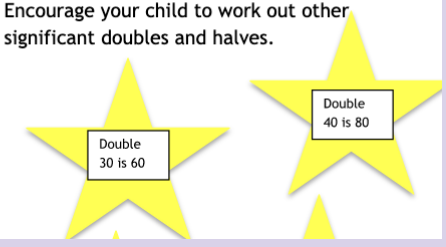
Continue the pattern:

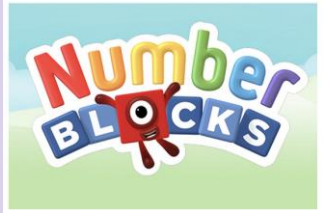
Double 11 is 22 11 + 11 = 22
Double 12 is 24 12 + 12 = 24
Double 13 is 26 13 + 13 = 26
Double 14 is 28 14 + 14 = 28
Double 15 is 30 15 + 15 = 30
Double 16 is 32 16 + 16 = 32
Double 17 is 34 17 + 17 = 34

Children should know that *doubling* is the same as **multiplying by two** an that the opposite of doubling is *halving*.
Halving is the **inverse** of *doubling* and the same as **dividing into two equal groups.**

Half of 22 is 11
Half of 24 is 12
Half of 26 is 13
Half of 28 is 14
Half of 30 is 15
Half of 32 is 16
Half of 34 is 17
Half of 38 is 18
Half of 40 is 20

Encourage your child to work out other significant doubles and halves.





Any Questions?

Useful Resources

School website - information on how we teach at CHI.

NRICH - challenge material and problem solving activities.

White Rose - area for parents

Mathletics - home learning platform