Maths at Gilbert Colvin

Summer term 2024

'Mathematics is not about numbers, equations, computations, or algorithms: it is about understanding.'

'Mathematics is a universal language, crossing cultures and languages.'

Why is maths important?

- It helps children to better understand the world around them
- Good levels of numeracy are important so that we can function in society
- It develops real-world skills, such as:
  - Problem solving
  - Critical thinking
  - Logical reasoning
  - Spatial awareness

"Good numeracy is the best protection against unemployment, low wages and poor health."

Andreas Schleicher
OECD

Aims of the session:

- To understand how maths is taught at Gilbert Colvin
- To know what maths the children learn at Gilbert Colvin
- To understand how you can support your child with maths at home

- At Gilbert Colvin, we use two programs to deliver maths lessons:

- Mastering Number

- Mathematics Mastery

Mastering Number

- Reception and KS1
- Secures firm foundations in the development of good number sense
- Develops fluency in calculation and a confidence and flexibility with number
- Subitising – seeing the total amount without counting
- Focus on developing mathematical language
- Short lesson, four times a week

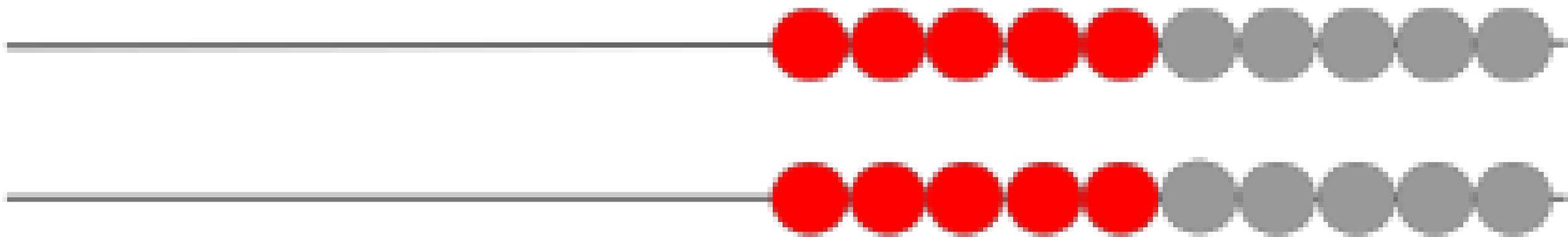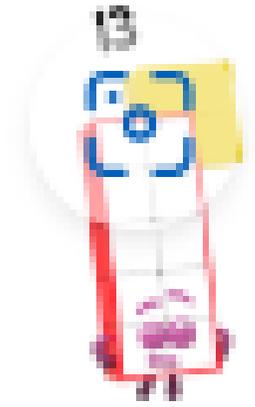# Can a number be both odd and even?

Look, Four! My square shape can have a flat top like you!
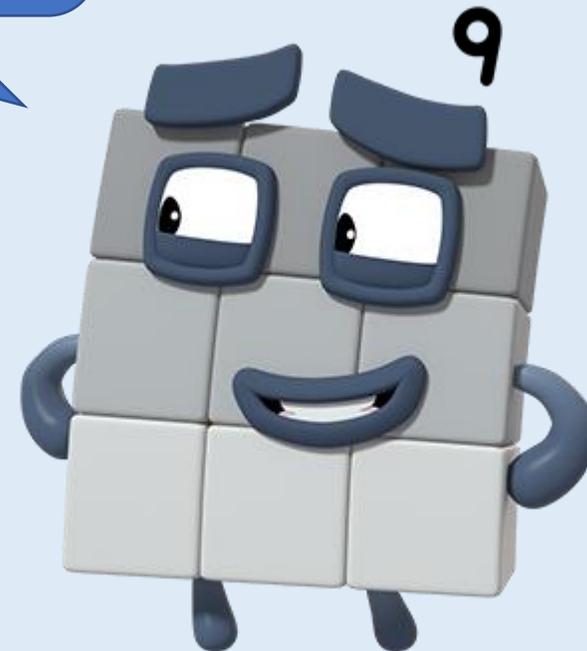
Week 7

Stem sentences

- Stem sentences include accurate mathematical vocabulary in a highly structured sentence that provides children with a way to communicate their ideas with mathematical precision

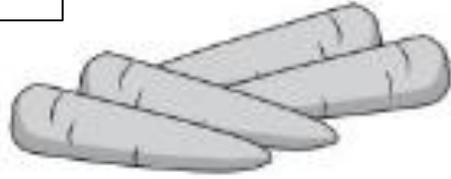10 needs _____ to make _____ ; _____ is made of _____ and _____ .

Mathematics Mastery

- Reception – Year 6
- Promotes mathematical thinking with deep, open questions
- 6 part lesson structure
- Fluency alongside problem solving and reasoning
- Focuses on the CPA approach
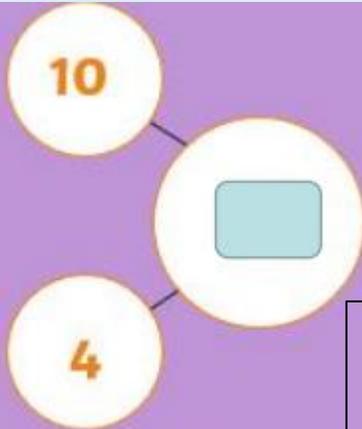
Reasoning

potatoes
£1.50 per kg

carrots
£1.80 per kg

Jack buys $1\frac{1}{2}$ kg of potatoes and $\frac{1}{2}$ kg of carrots.

How much **change** does he get from £5?

Problem solving

2 Here are two number cards.

A B

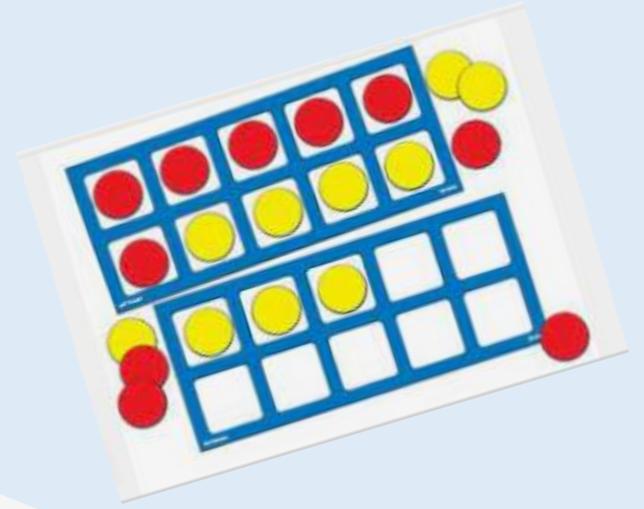Here is some information about the cards.

When you divide A by B you get 1.5

The difference between A and B is 7

Find the value of A and B.

Fluency

+ and -

10

4

10 + 4 =

Concrete

- The 'doing' stage
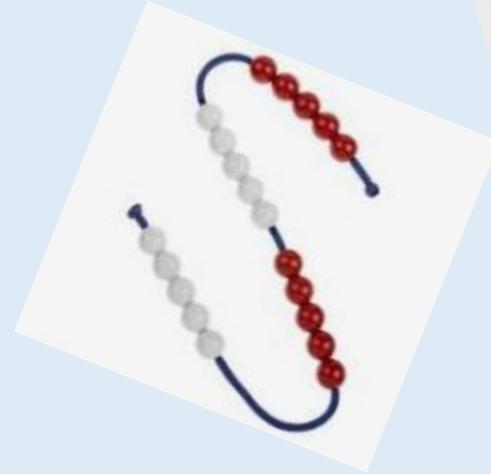
- 'Pupils who use **concrete materials** develop a more precise and more comprehensive mental representation, they often show'. Mathematics Mastery
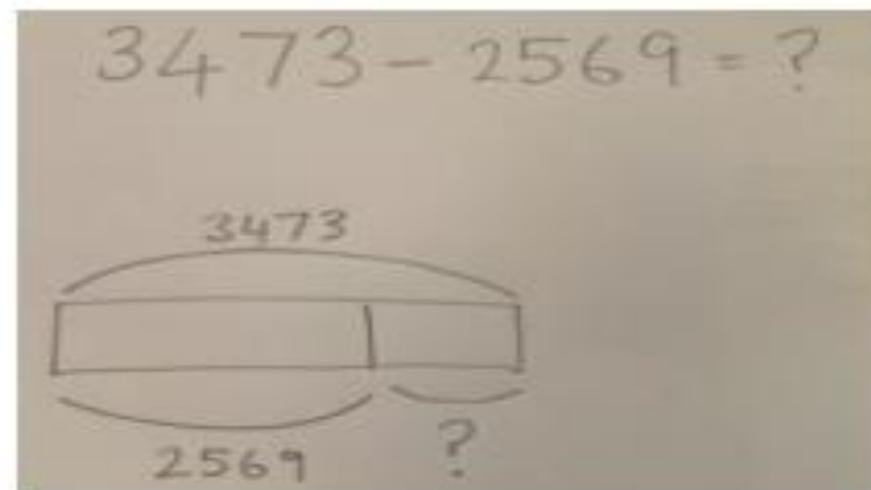
6

Pictorial

- The 'seeing' stage
- Children move onto the pictorial stage when they are confident in the concrete stage

Pictorial Representation
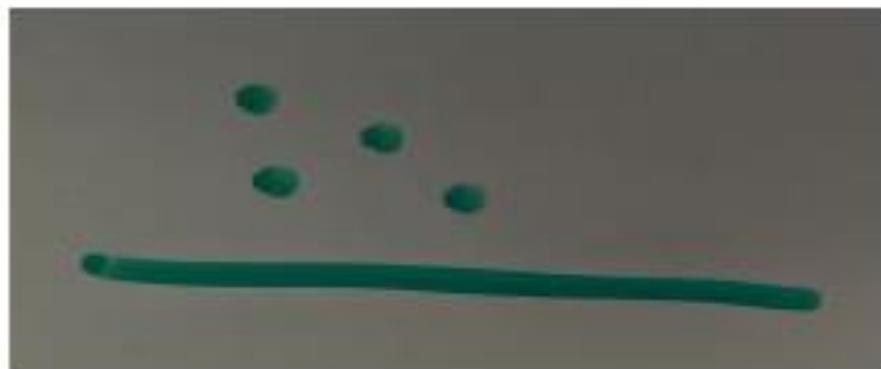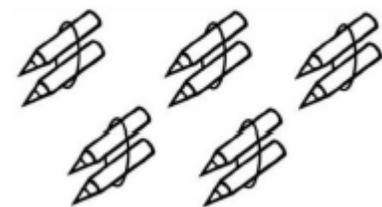
Abstract

- The 'symbolic' stage
- Numbers, letters and symbols

$66 + 78 =$ $970 \div 12 =$

$23 \times \boxed{} = 207$

EYFS

- Count to 20
- Use 'more' and 'less' to compare two numbers.
- Estimate number of objects and check by counting
- Say one more / less
- Add and subtract two small groups of objects
- Double, halve and share
- Recognise patterns

Year 1

- 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
- Read and write numbers from 1 to 20 in numerals and words.
- Represent and use number bonds and related subtraction facts within 20
- Add and subtract one-digit and two-digit numbers to 20, including zero

Year 2

- Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward
- Recognise the place value of each digit in a two-digit number (tens, ones)
- Compare and order numbers from 0 up to 100
- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables
- Recognise odd and even numbers
- Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones a two-digit number and tens 3 one-digit numbers
- Find simple fractions, e.g. 1/2, 1/3, 1/4, 1/5, 1/10 of shapes & amounts.
- Tell and write the time to five minutes

Year 3

- Count from 0 in multiples of 4, 8, 50 and 100
- Find 10 or 100 more or less than a given number
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
- Compare and order numbers up to 1000
- Add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens
- Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- Add and subtract fractions with the same denominator within one whole
- Know the number of seconds in a minute and the number of days in each month, year and leap year

Year 4

- Count in multiples of 6, 7, 9, 25 and 1000
- Find 1000 more or less than a given number
- Count backwards through zero to include negative numbers
- Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
- Order and compare numbers beyond 1000
- Solve number and practical problems that involve all of the above and with increasingly large positive numbers
- Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- Recall multiplication and division facts for multiplication tables up to 12 × 12
- Add and subtract fractions with the same denominator
- Read, write and convert time between analogue and digital 12 and 24- hour clocks

Year 5

- Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
- Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000
- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero
- Add and subtract whole numbers with 4 or more digits
- Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. 2/5 + 4/5 = 6/5 = 11/5)
- Convert between different units of metric measure including time

Year 6

- Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
- Add, subtract, multiply and divide numbers with up to 4 digits using the formal written methods of columnar addition and subtraction, short and long multiplication, and short and long division
- Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
- Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- Express missing number problems algebraically
- Convert between miles and kilometres

Number bonds
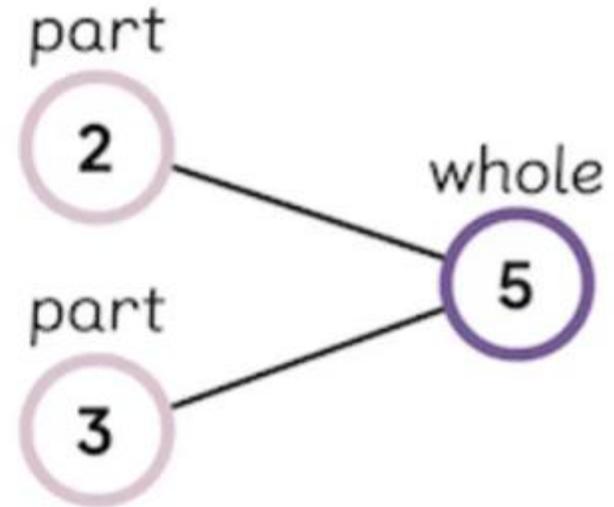
- Pairs of numbers that add up to a larger number
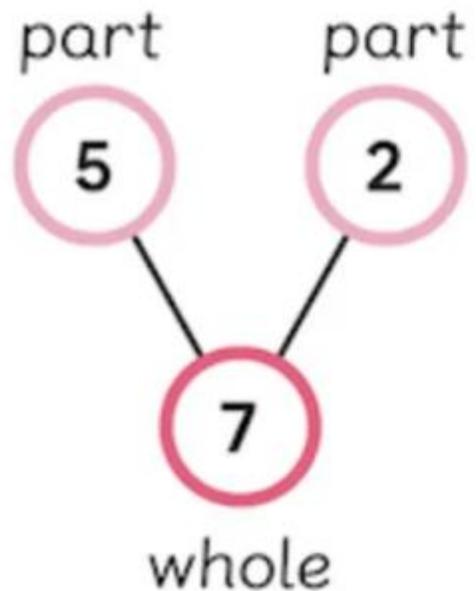
0 + 10
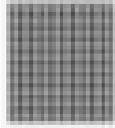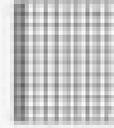
1 + 9

2 + 8

3 + 7

4 + 6

5 + 5

Times tables

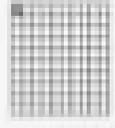- Need to know individual number facts

- Up to 12 x 12

- Learn times tables out of sequence e.g. solve 8 x 4 without having to recite from the beginning

- Encouraged to use known facts to help them e.g. to find the 10x table, double the 5x table

- You can practise this at home by asking your child to solve quick-fire times table facts whilst cooking dinner, shopping or walking home from school

Some changes from when we were at school!

- Column method is not taught until Year 3, so that children have a solid understanding of place value

- Children are not given content from older year groups, but instead are provided with challenging content within their own year group first

- Place value language: ones not units

- Times tables are not learnt purely by rote or in sequence

Hundreds	Tens	Ones	.	Tenths	Hundredths

How can you support your child at home?

- Talk positively about maths everyday!

- Regularly practise numbers bonds and times tables.

- Incorporate mathematics into everyday routines and activities: tidying up and meal times in particular provide opportunities for conversations about counting, comparing quantities of food or capacity of cups, sorting items, time, and sharing.

- Play board games, particularly ones with numbers.

- Point out maths in the real world e.g. what unit would we measure the volume of the water in the pond in? What is the distance on the sign from Barkingside to Ilford?

- As well as questioning your child, model your own thinking out loud because it is so important that they learn from how you plan, monitor and evaluate tasks.

Useful websites

Times Tables Rock Stars – Times Tables Rock Stars (ttrockstars.com)

Hit the Button - Quick fire maths practise for 6-11 year olds (topmarks.co.uk)

Numberblocks: See the Amount - Maths EYFS - Subitising game for Reception - BBC Bitesize

KS1 Maths - BBC Bitesize

KS2 Maths - BBC Bitesize

1-minute maths app | White Rose Education (app, suitable for EYFS and KS1)

National Numeracy

- A maths education charity aimed at supporting and improving numeracy amongst adults and families

- https://www.nationalnumeracy.org.uk/helping-children-maths/families

The help that parents give their children at home has a very significant impact on their learning.

Development Matters (2023)