

Teaching and Learning Maths



**Padnell Infant
School**

‘Mighty oaks from tiny acorns grow’

Aims

- To share how maths is taught following national curriculum
- To develop confidence in helping children with maths
- To share the basic methods of calculation
- To show examples of activities and resources we use to teach maths

National curriculum

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the basics of mathematics- understanding and recall (Efficiency, Accuracy and Flexibility)
- **reason mathematically** explain their findings/ answers and use mathematical vocabulary
- can **solve problems** by applying their mathematics to a variety of 1 step and more problems.

Maths Teaching

Daily lessons with enhanced learning opportunities continuously available.

National Curriculum Programme of study and EYFS

Big Maths Beat That
Education City
PlayLive

Developing
Number Sense

Guided Reasoning
Maths Mouth

Multiple representation of number to ensure good basic understanding-
Numicon

Areas within Maths

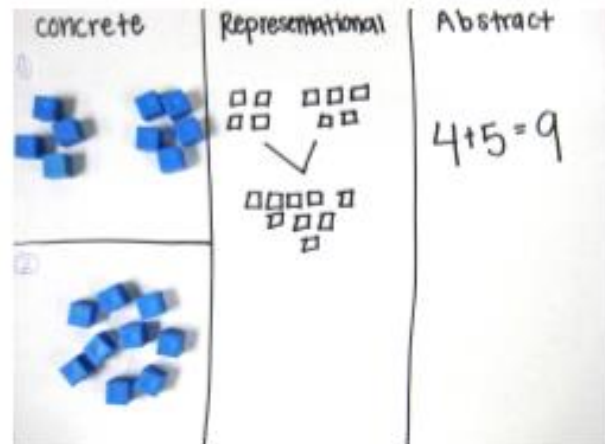
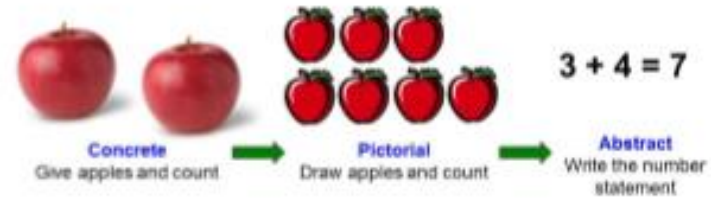
- ▶ Using and applying (runs through all areas)
- ▶ Number and Place Value
- ▶ Addition and Subtraction
- ▶ Multiplication and Division
- ▶ Fractions
- ▶ Geometry
- ▶ Measures
- ▶ Statistics
- ▶ Problem Solving (throughout all of above)

Resources Pack

- ▶ Support all calculations and Number and Place Value
- ▶ 0- 100 Number line
- ▶ Numicon cards
- ▶ Number fan
- ▶ Dice x 2
- ▶ Number formation

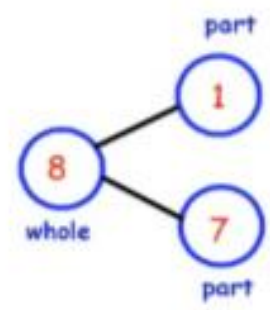
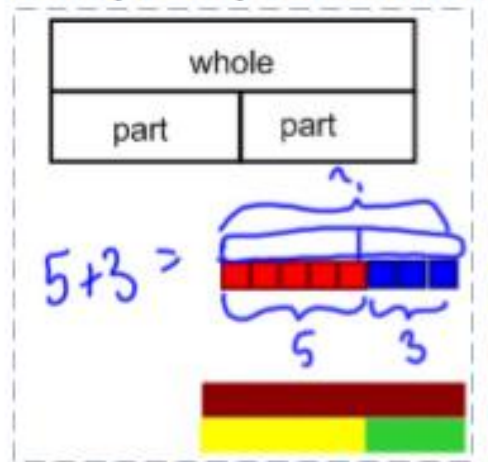
Concrete- Pictorial- Abstract

What does it mean?

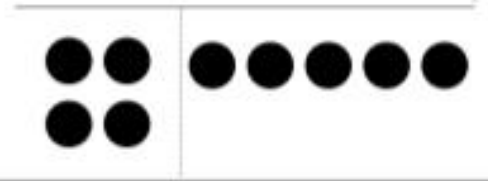


Part- Part- Whole

Multiple Representation



9



Addition

1. Objects

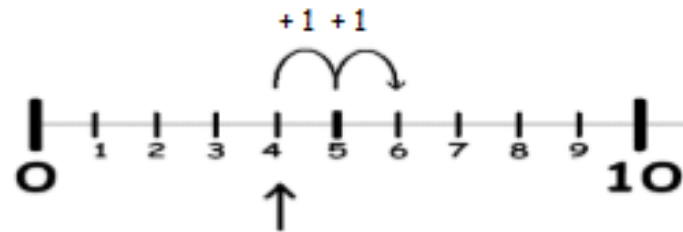


$$4 + 2 = 6$$



$$8 + 5 = 13$$

2. Counting on



$$4 + 2 = 6$$

3. Number Bonds

$$8 + 4 + 2 = 14$$

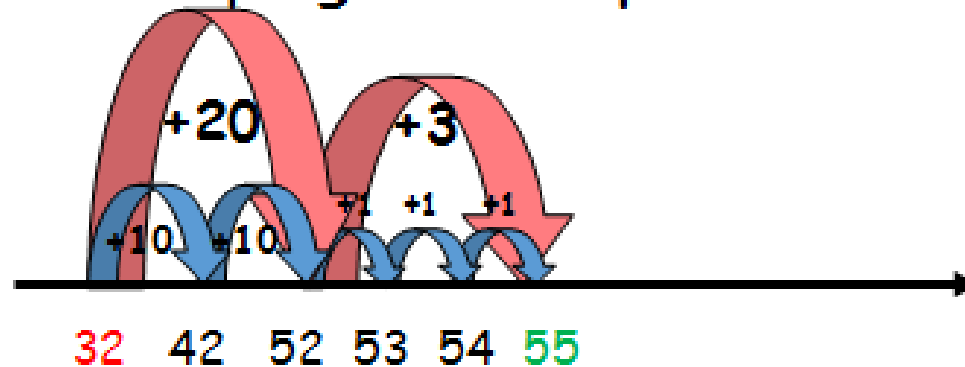
Diagram showing 8 and 4 grouped together with a bracket underneath to form 10, and 2 separate. The 10 and 2 are written below the equation.

4. Bridging the ten



$$37 + 6 = 43$$

5. Jumping in multiples



$$32 + 23 = 55$$

Addition cont'd

6. Partitioning

$$45 + 23 = 68$$

Tens $40 + 20 = 60$

Ones $5 + 3 = \underline{8}$
68

7. Column Addition

$$\begin{array}{r} \text{HTO} \\ 84 \\ + 57 \\ \hline 141 \\ \hline 1 \end{array}$$

Subtraction

1. Objects

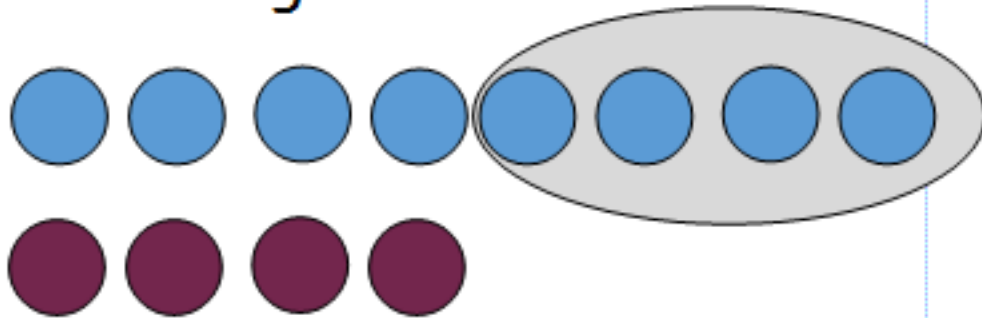


$$6 - 2 = 4$$

What do I get if I take away 2 from 6?

Answer: 4

2. Finding the difference

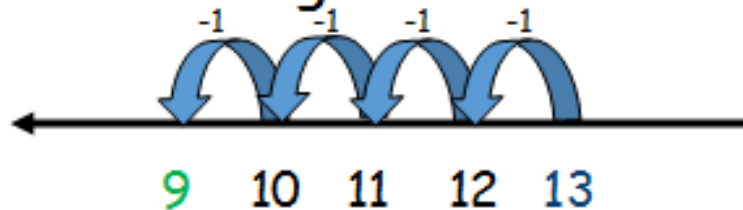


$$8 - 4 = 4$$

How many more is 8 than 4? Answer: 4

Subtraction

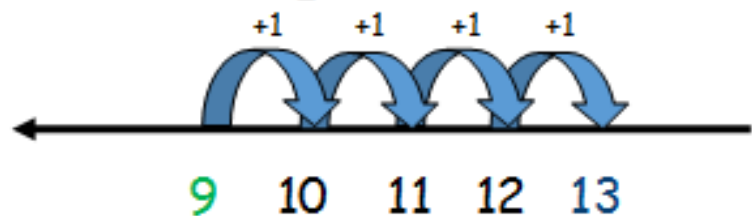
3. Counting backwards



$$13 - 4 = 9$$

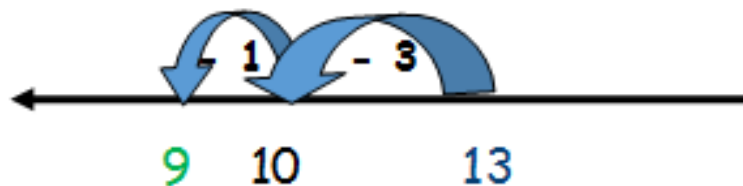
What do I get if I take away 4 from 13? Answer: 9

4. Counting on



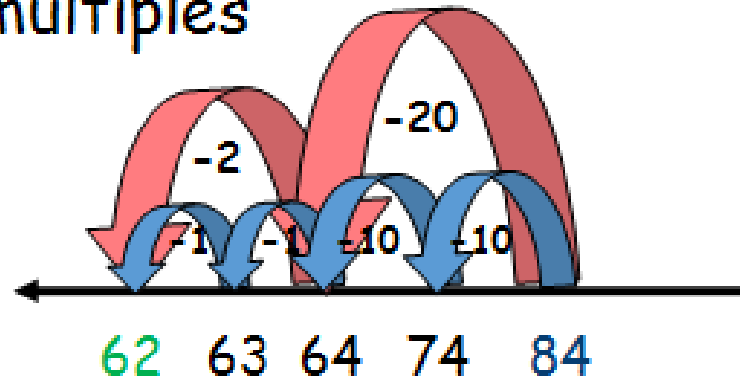
How many more is 13 than 9? What is the difference?

5. Nearest 10



$$13 - 4 = 9$$

6. Jumping backwards in multiples



$$62 \quad 63 \quad 64 \quad 74 \quad 84$$
$$84 - 22 = 62$$

8. Partitioning

$$84 - 33 = 51$$

Tens $80 - 30 = 50$

Ones $\underline{4 - 3 = 1}$

$$50 + 1 = 51$$

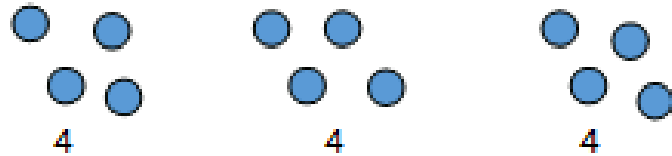
Subtraction cont'd

7. Column subtraction

$$\begin{array}{r} \text{H T O} \\ 84 \\ - 33 \\ \hline 51 \end{array}$$

Multiplication

1. Grouping



$$4 \times 3 = 12$$

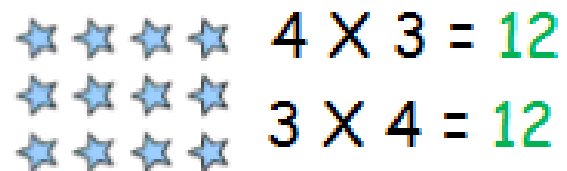
4 times 3 means 4, 3 times.
Which gives 3 lots of 4!

2. Repeated Addition

$$4 \times 3 = 12$$

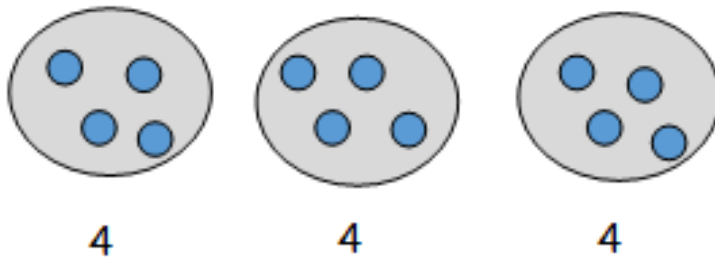
$$4 + 4 + 4 = 12$$

3. Arrays


$$\begin{array}{cccc} \star & \star & \star & \star & 4 \times 3 = 12 \\ \star & \star & \star & \star & 3 \times 4 = 12 \\ \star & \star & \star & \star & 3 \times 4 = 12 \end{array}$$

Division

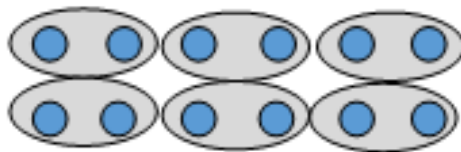
1. Sharing



$$12 \div 3 = 4$$

12 divided by 3 equals 4.

2. Grouping

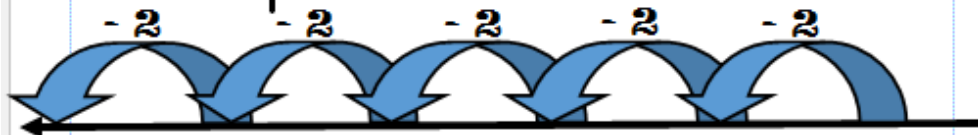


$$12 \div 2 = 6$$

How many groups of 2 can I fit into 12? Answer: 6

Division

3. Repeated subtraction



0 1 2 3 4 5 6 7 8 9 10

$$10 \div 2 = 5$$

10 divided by 2 equals 5 jumps.

Key Vocabulary:

Addition

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones/units, partition, addition, column, greater than, less than

Subtraction

equal to, take, take away, less, minus, subtract, leaves, distance between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is_?

Multiplication

Groups of, lots of, times, multiply, altogether, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, partition, multiple, product, tens, ones/units, value, total, inverse

Division

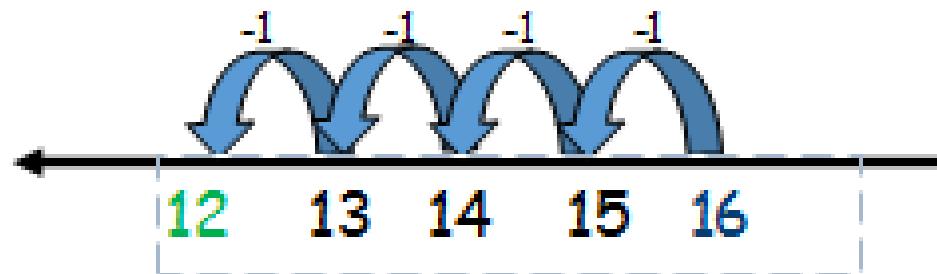
Divide, share, share equally, group, equal groups, lots of, array, divide, divided by, division, grouping, number line, left, left over, remainder

Inverse- addition & subtraction

$$4 + \underline{\quad} = 16$$

$$16 - 4 = \underline{\quad}$$

1. Numberline

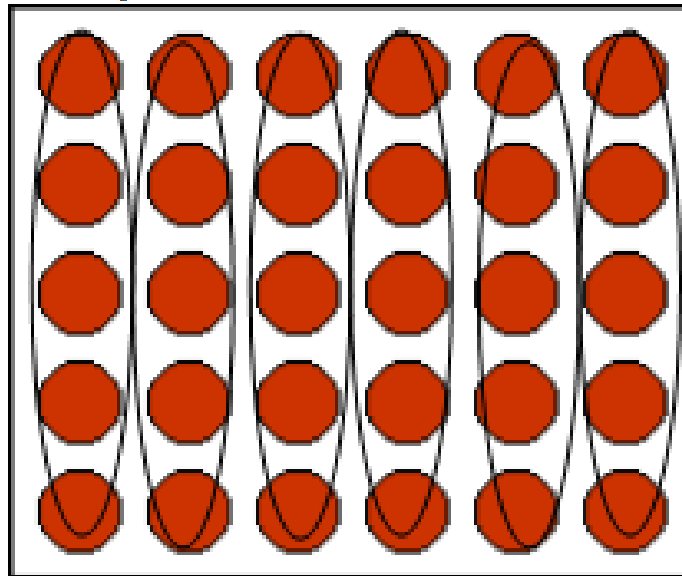


Inverse- multiplication & division

$$5 \times \underline{\quad} = 30$$

$$30 \div 5 =$$

1. Array



The Celebrating Maths Project

The Celebrating Maths Project is a series of three short videos written to give parents a range of mathematical games and puzzles to play with their children.

The first video, for parents of children aged 4-5, gives ideas for finding maths in everyday situations. The second for ages 6-7, give strategy games that can be played with simple equipment and an active mind!

- ▶ Play games
- ▶ Ask the question: 'The answer is 10 (or any number), what's the question?' Possible responses: 8 plus 2, 1 million divided by one hundred thousand, 5×2 , $25 - 15$, the number before 11 etc

Everyday situations:

- ▶ Sorting things out and putting things away,
- ▶ Ordering and sequencing when getting dressed, going to the shops, having a bath etc. Talk about what you do first, what you do next, ... and last of all.
- ▶ Comparing objects
- ▶ Matching and counting
- ▶ Counting, weighing, measuring capacity and timing when cooking
- ▶ Talking about time
- ▶ Handling small amounts of money

Play activities/games:

- ▶ Talking about directions when walking around or playing with toy vehicles etc.
- ▶ Making models with building bricks, Lego, boxes etc. Talk about shape and position, count the number of similar shapes etc.
- ▶ Counting particular things on journeys, e.g. red cars, fields with cows in, churches etc.

Mental activities:

- ▶ Counting in 1s, then 2s or 10s, e.g. as you climb stairs, walk to the local shop etc.
- ▶ All of the above provide the foundation for mathematical understanding and development.

Helpful Websites

www.purplemash.co.uk

<https://ec1.educationcity.com/>

www.bbc.co.uk/bitesize/ks1/maths/

www.ictgames.com

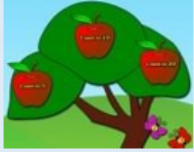
www.topmarks.co.uk/mathsgame

www.mathschamps.co.uk

www.oxfordowl.co.uk - free e-books

Helpful Apps

Free Counting Game



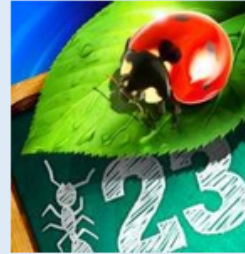
Kids Counting

Another great APP to encourage children to read and use numbers to 20.



Maths Tree

A simple yet attractive addition and subtraction APP.



Bugs and Numbers

This app will take up a lot of memory but well worth paying for. These are examples of good quality APPs for Early Years maths.



Busy things

Great Apps covering a range of learning around maths.



Math aged 3-5

Brilliant app that develops number recognition, sequencing and positioning. Its sister app Math aged 4-6 is also excellent.

Helpful Apps continued



Teaching Number Lines 4+

Aleesha Kondys

Free · Offers In-App Purchases



Hit the Button Maths 4+

Topmarks Online Ltd

#5 in Education

★★★★☆ 4.0, 42 Ratings

£2.99