

# Welcome

*Which is the odd one out and why?*

5

12

10

There is no right or wrong answer here. This kind of activity works across the school.

Younger years would discuss odd, even, it's in the ...x table.

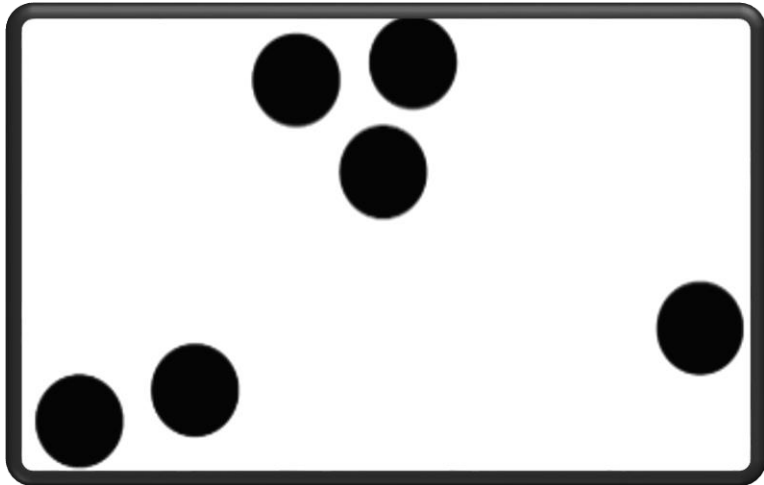
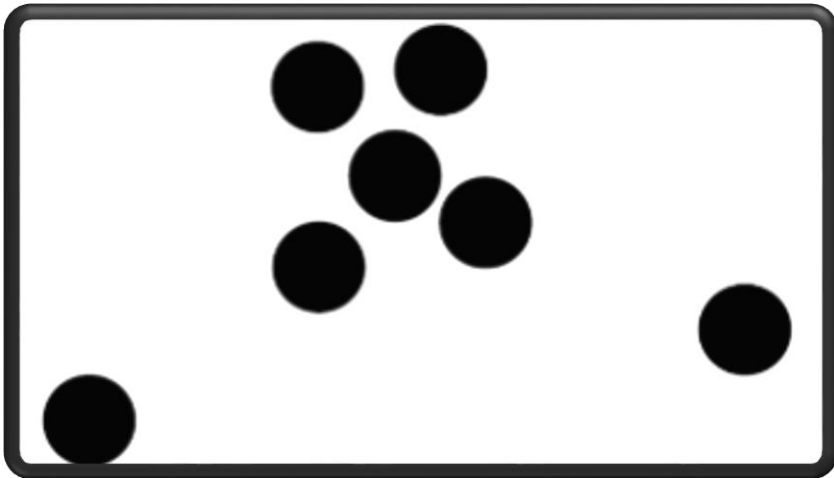
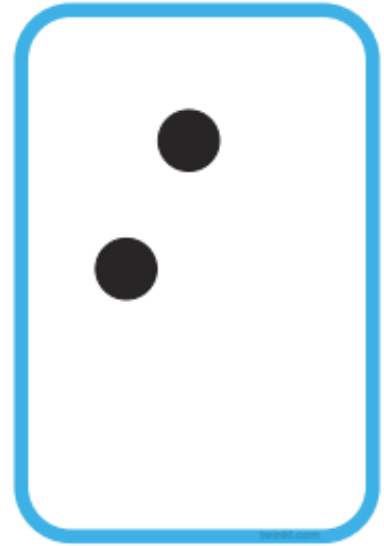
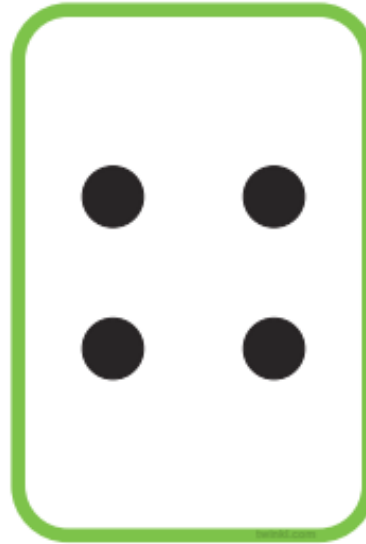
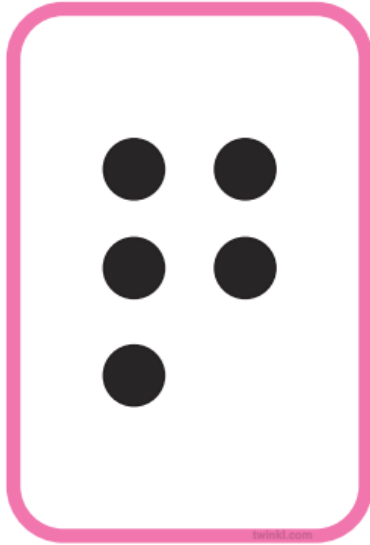
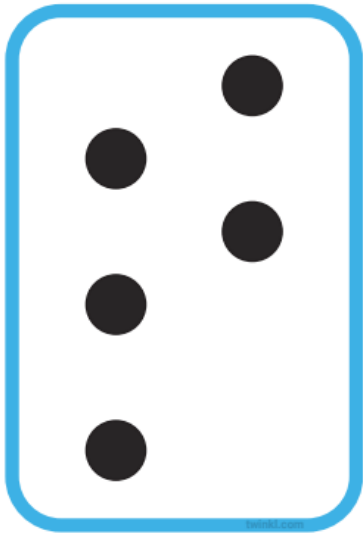
Older children would use language such as common factors, prime, divisible etc.

# Discuss



Discuss 3 positive and negative experiences of Maths you had when you were a child.

# How many dots are there?



Subitising is when you are able to look at a group of objects and realise how many there are without counting.

# What does the NC say?

Children should:

- Become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **Reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations and developing an argument, justification or proof using mathematical language.
- **Solve problems** by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

# What is mastery?

## What does it mean to master something?



- I know how to do it
- It becomes automatic and I don't need to think about it- for example driving a car
- I'm really good at doing it – painting a room, or a picture
- I can show someone else how to do it.

## How do we do it?

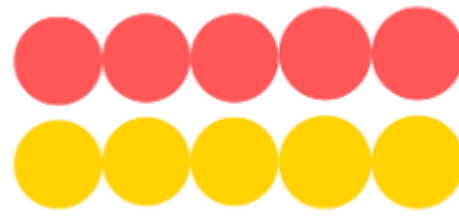
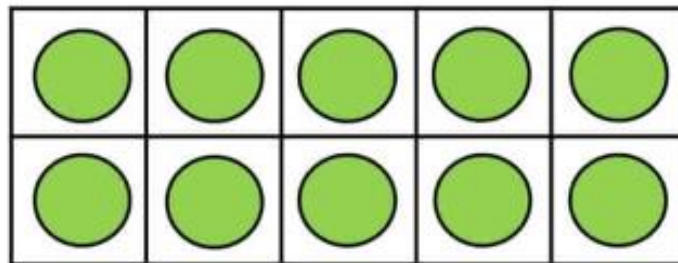
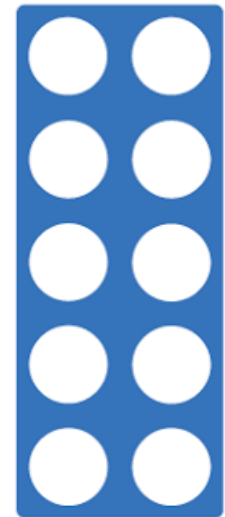
*Fluent in the key facts*

Small steps of progression

Use of concrete resources (variation)

*Work with the experts*

# Mathematical Representations of 10



# Double Sided Counters

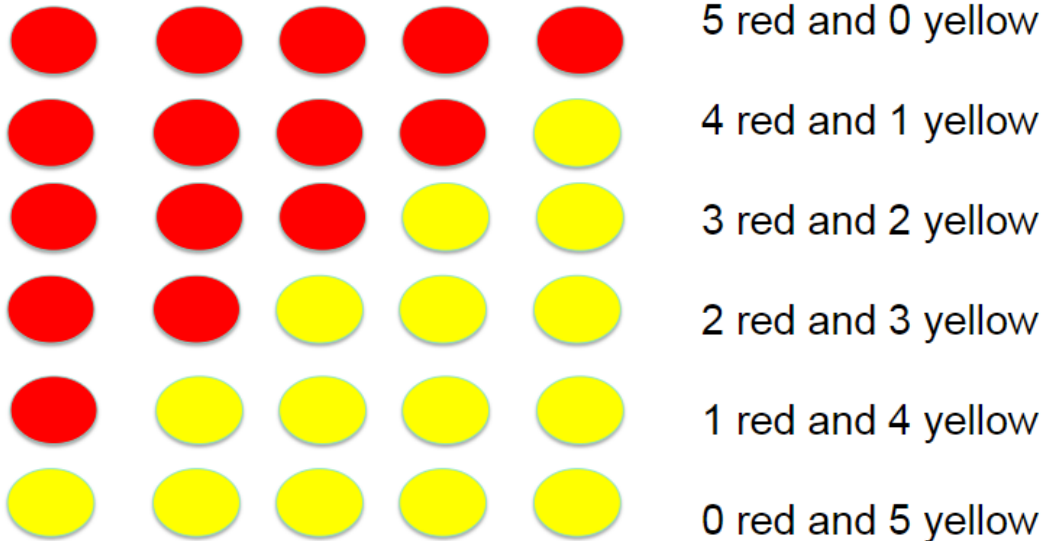
How many different ways can you make 5?





# Double Sided Counters

How many ways to make 5?



**Addition calculations**

**Subtraction as difference**

**Working systematically**

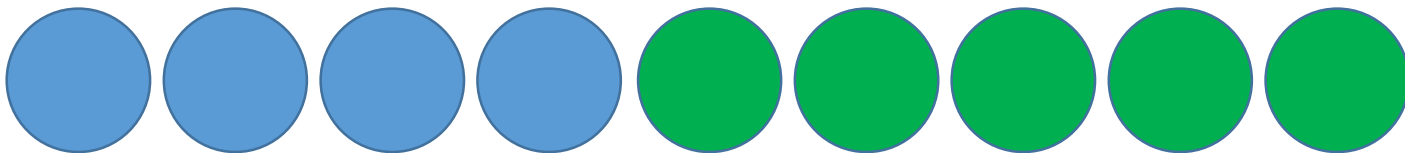
**Can be thrown in the air and land randomly**

# Double Sided Counters



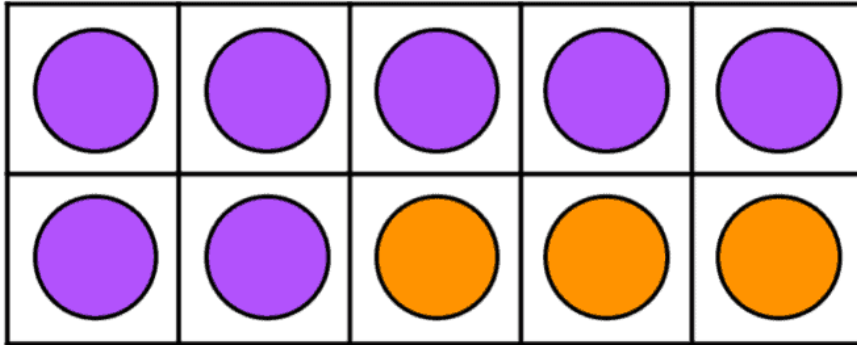
Can be used to represent anything in early maths word problems.

Good in helping to children see the physical adding and taking away.



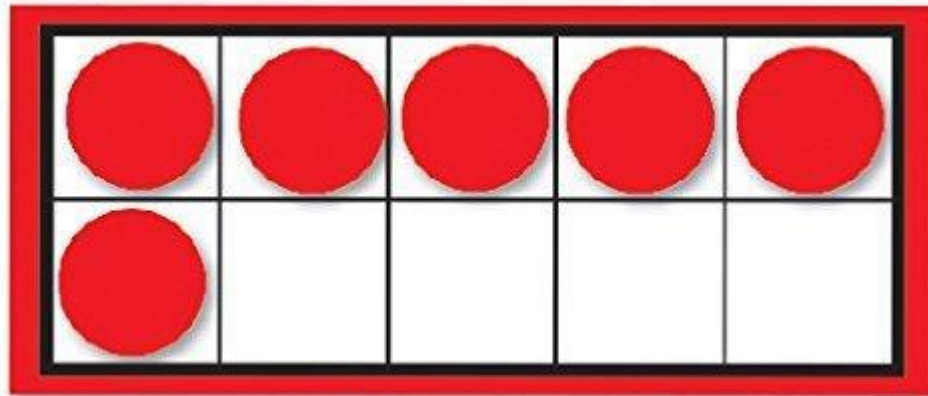
Year 6 – Share £72 in the ratio 4:5

# Tens Frames



Number bonds to 10

Subitising

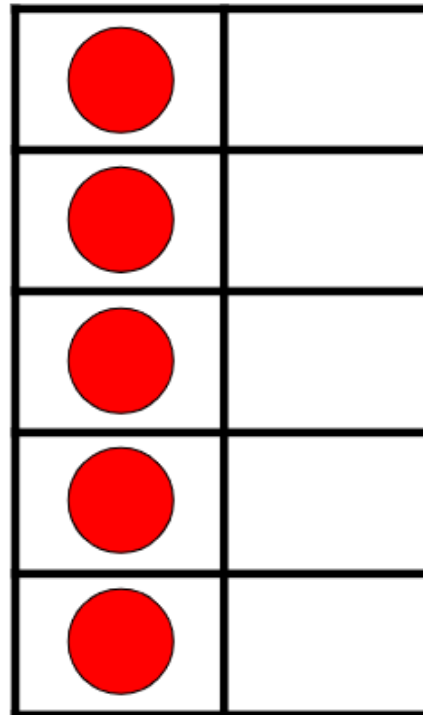
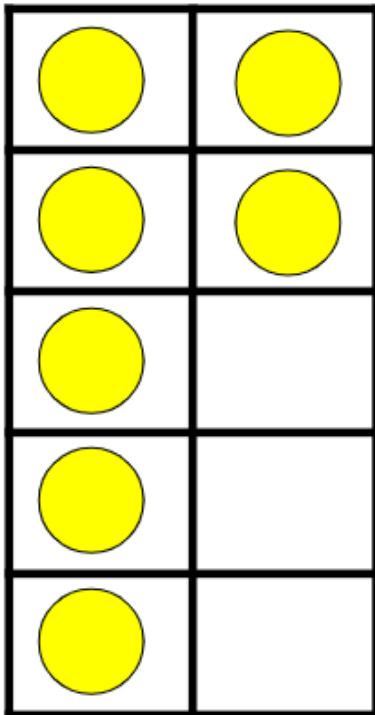


# Tens Frames

Using known facts.



What facts do you need to solve  $7 + 5$ ?



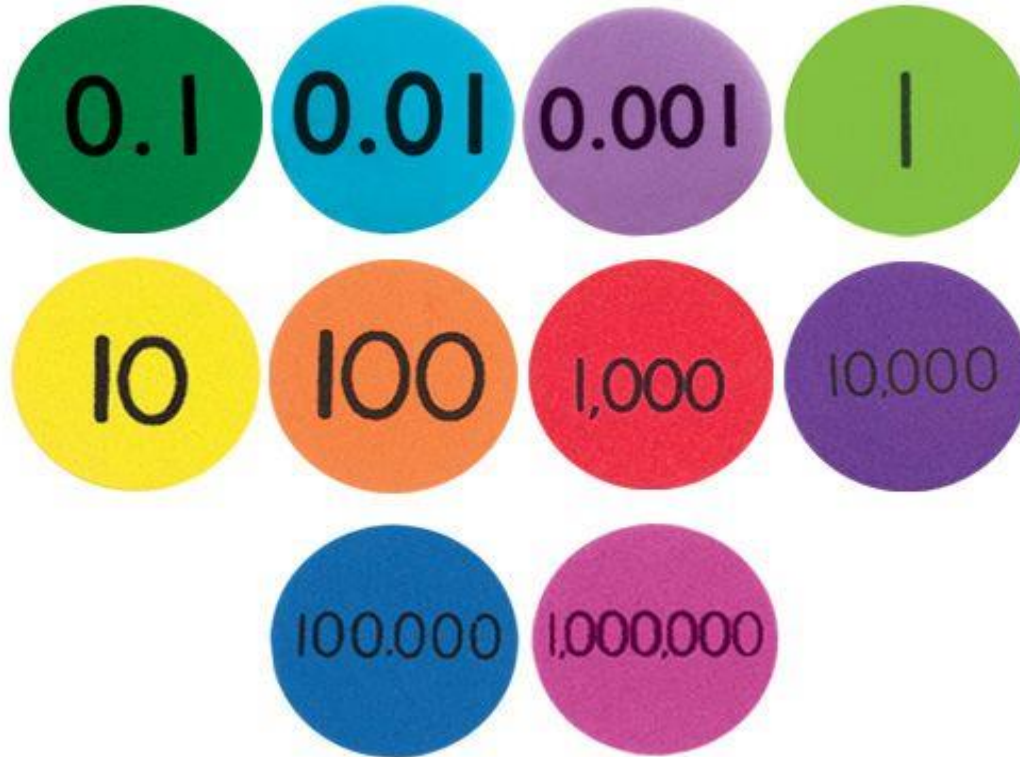
# Place Value Counters

EYFS : 1 – 10

KS1: 1-100

LKS2: 0.01-1,000

UKS2: 0.001 – 10,000,000

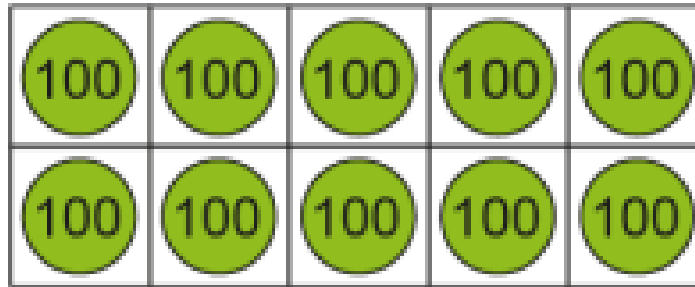


# Place Value Counters

## Exchanges

*Ten ones can be exchanged for 1 ten.*

*Ten hundreds can be exchanged for 1 thousand.*



*Ten **hundredths** can be exchanged for 1 tenth.*

# Place Value Counters to support written methods

Year 4 – Addition

Th	H	T	O
2	1	7	6
+ 3	4	5	8
<hr/>			

Year 5 – Decimals

$0.28 + 0.36 =$

Ones	Tenths	Hundredths

+

Year 3 – Subtraction

$712 - 40 =$

H	T	O
7	1	2

Year 5 – Division

Circle the groups of 3 to help complete the sentences and calculation.

The first step has been done for you.

Th	H	T	O
3	9	3	8

	1			
3	3	9	3	8

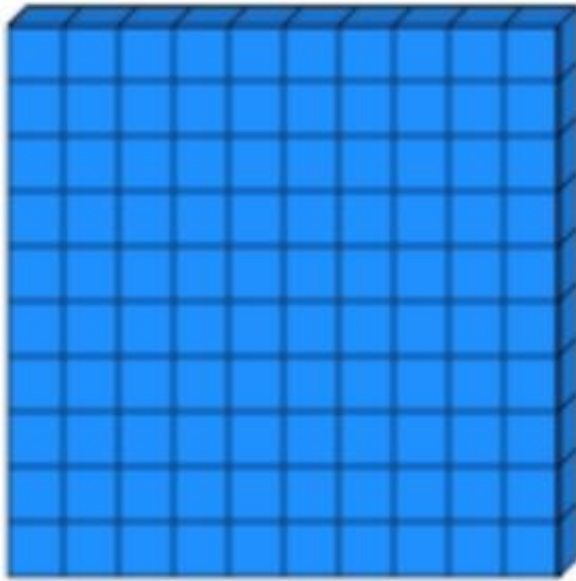
# Dienes



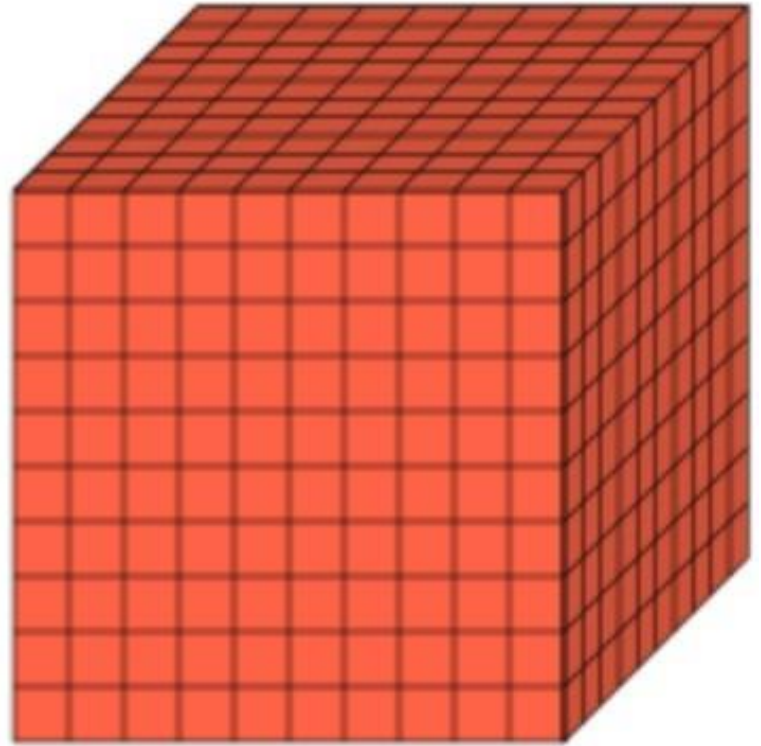
1



10



100



1,000



# Websites

## EdShed



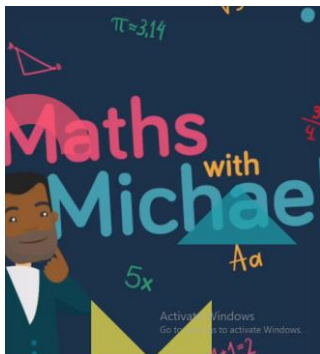
<https://www.edshed.com/en-gb/login>



App available on  
Google Play and Apple  
Store



<https://whiterosemaths.com/home/earning?year=year-1>



<https://whiterosemaths.com/maths-with-michael>



<https://whiterosemaths.com/parent-resources>

## Finishing Off...

# Chinese Bamboo



When you plant it, nothing happens in the first year, nor in the second year or the third or the fourth years. You don't even see a single green shoot.

And yet, in the fifth year, in a space of just six weeks, the bamboo will grow nine feet high.

The question is, did it grow nine feet in six weeks or in five years?

## Finishing Off...



What maths opportunities, games and activities can you come up with using a tube of smarties?

## Finishing Off...

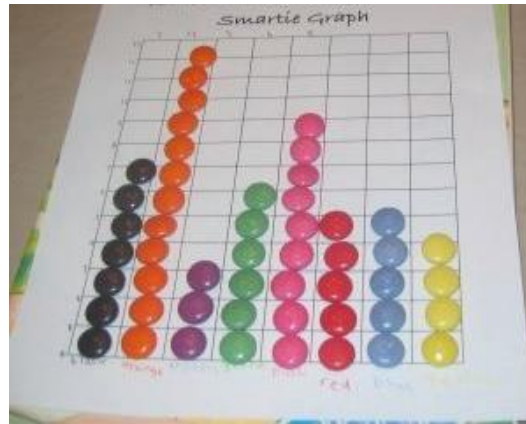
### *Ratios or fractions*

of the colours of smarties in the packet.



### *Statistics*

Create a bar chart of colours in a packet.



### *Division as Sharing*

### *Subitising to 5*

Show a number of smarties up to 5. Do they know how many there are without having to count?

### *Repeating Patterns*

You create a pattern. They repeat it until they run out of a colour.

### *Number Bonds to 10*

10 smarties in total. Hide some in the tube. How many are in the tube?

### *Place Value*

Assign each colour a place value heading. Choose a set of smarties. What number have you created?