

# What does Mastery look like in the classroom?

## Identifying Effective Strategies

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# 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.

# Mastery of Mathematics is more.....

- Achievable for all
- **Deep** and sustainable learning
- The ability to build on something that has already been sufficiently mastered
- The ability to reason about a concept and make connections
- Conceptual and procedural fluency

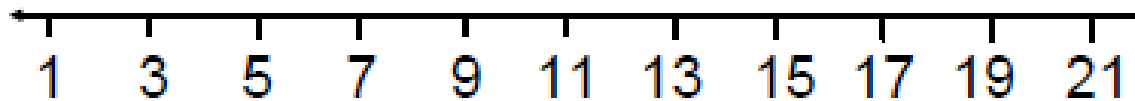
# A Mastery Curriculum

- A belief that all pupils can learn mathematics
- Keeping the class working together so that all can master mathematics
- Development **of deep** mathematical knowledge
- Development of both factual/procedural and conceptual fluency
- Longer time on key topics

# Introduction

# Counting in odd and even numbers

Let's count in odd and even numbers



# Representing the Problem

There are 5 cars in the car park

Using the counters how can you represent it?

# 5 Cars in a Car Park



What does one  
counter represent?

3 cars drive away  
How can you represent it?





# 3 Cars Drive Away





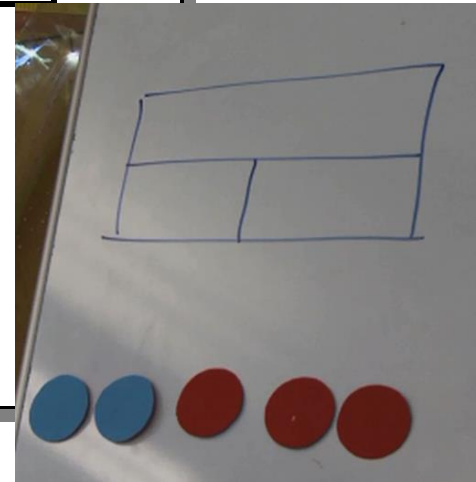
# Connecting to the Part Part Whole Model

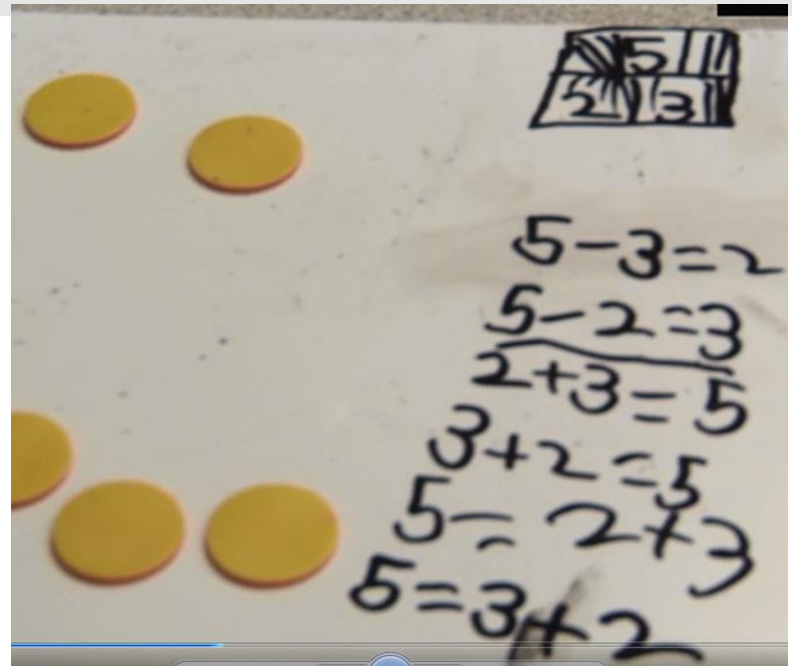
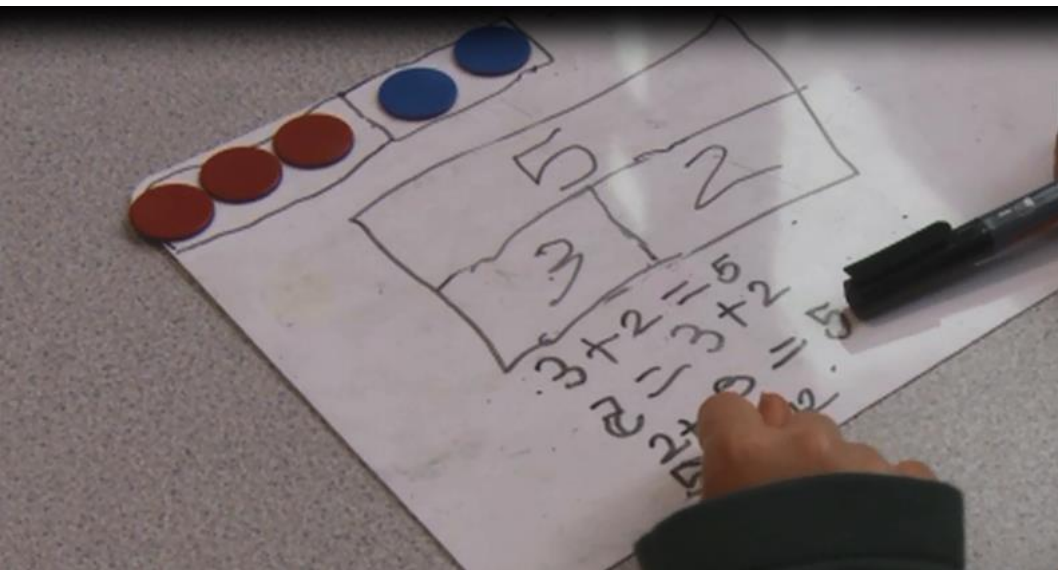
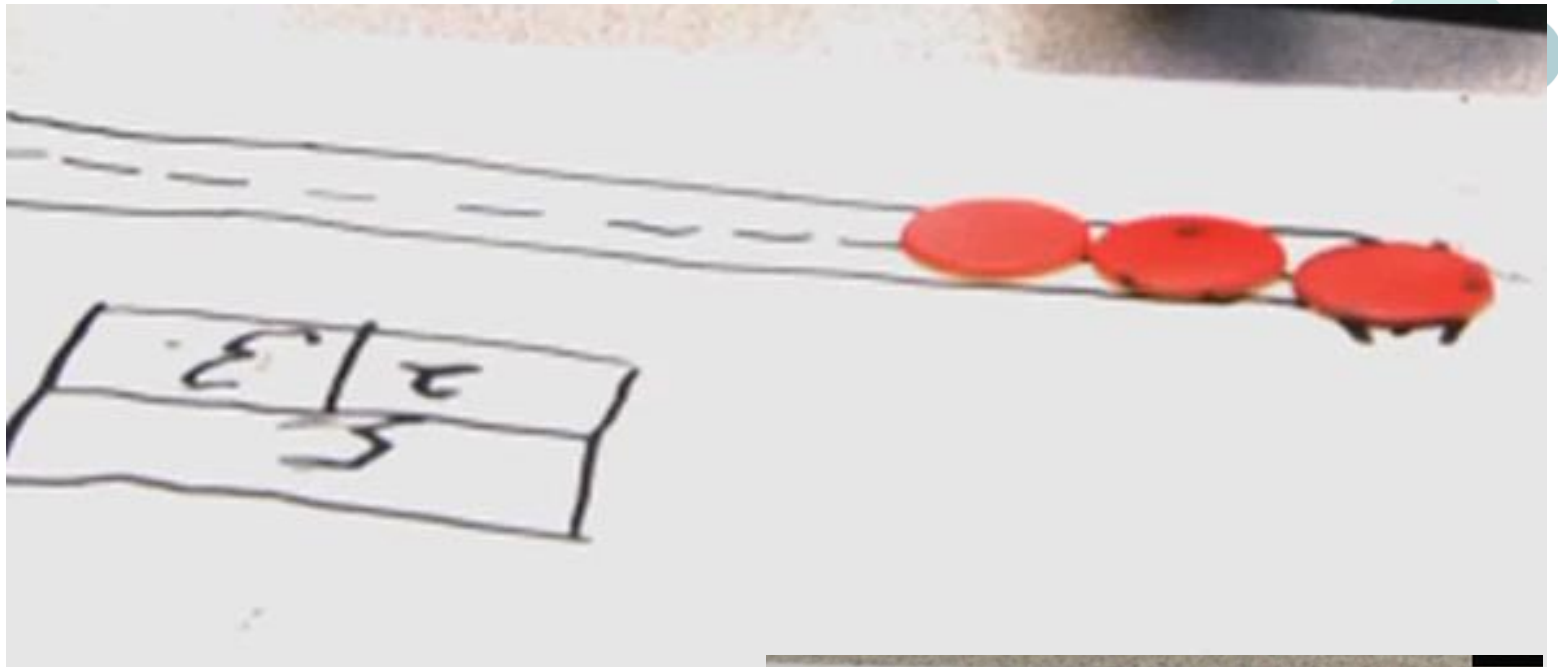
How many are left?

There are 5 cars in a car park.  
3 cars drive away.



Video 03





# A focus on difference

There are 5 red cars and  
3 blue cars

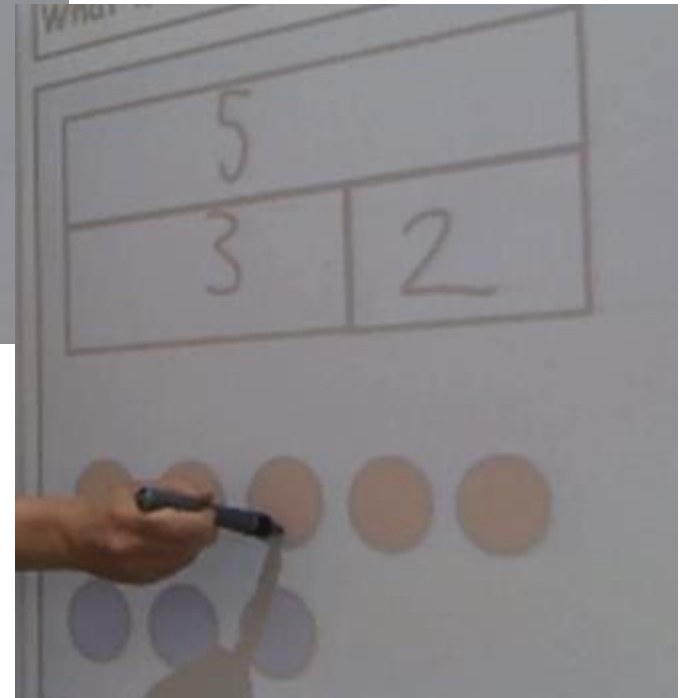
What does one  
yellow counter  
represent?

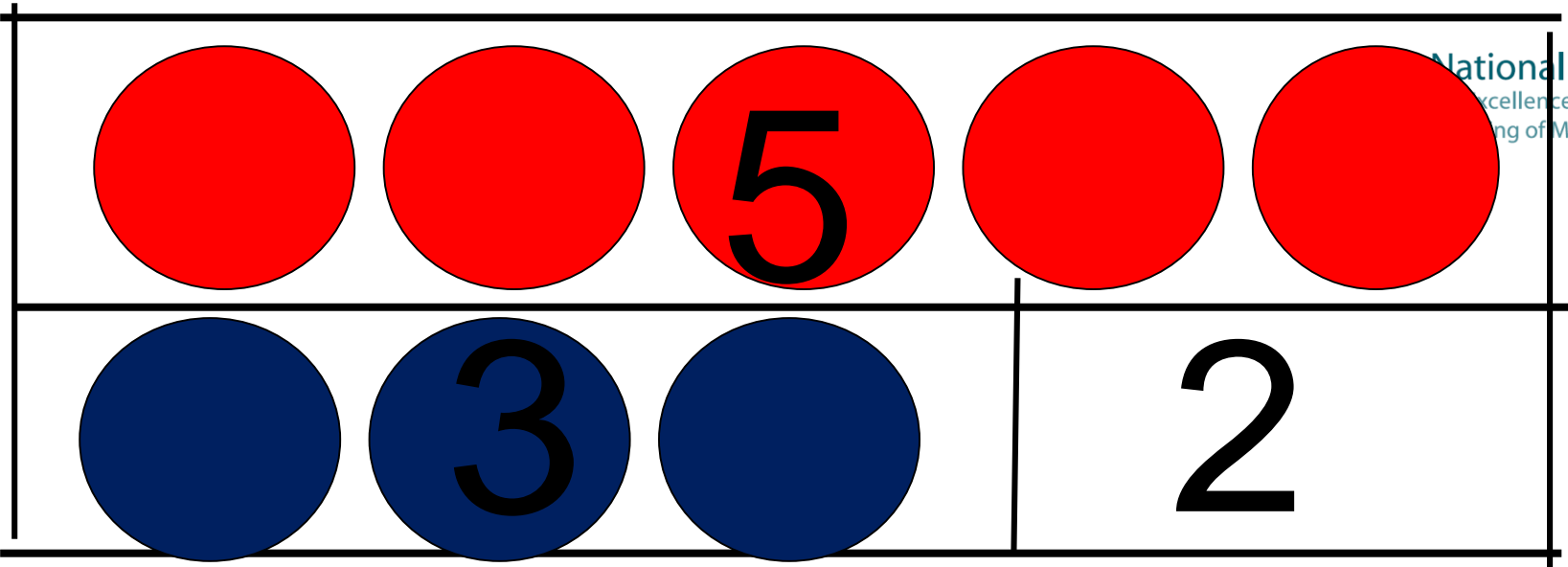


What is the  
difference between  
the red cars and  
the blue cars?



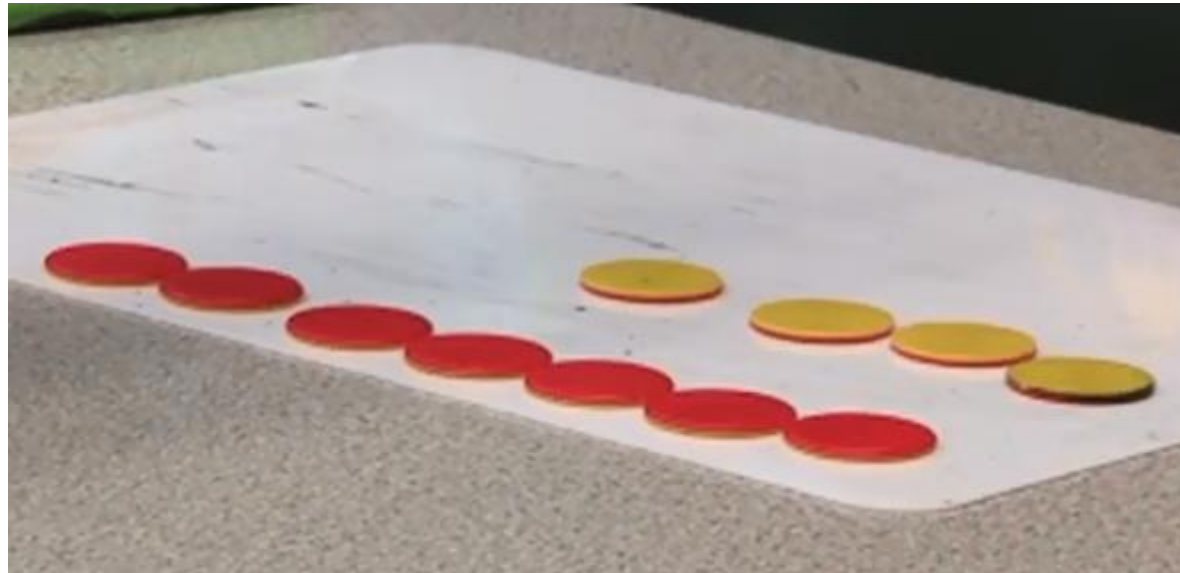
# Making a connection to the Part Part Whole model





**Making a connection to  
the Part Part Whole model**

# There are 7 children and 4 dinner tokens



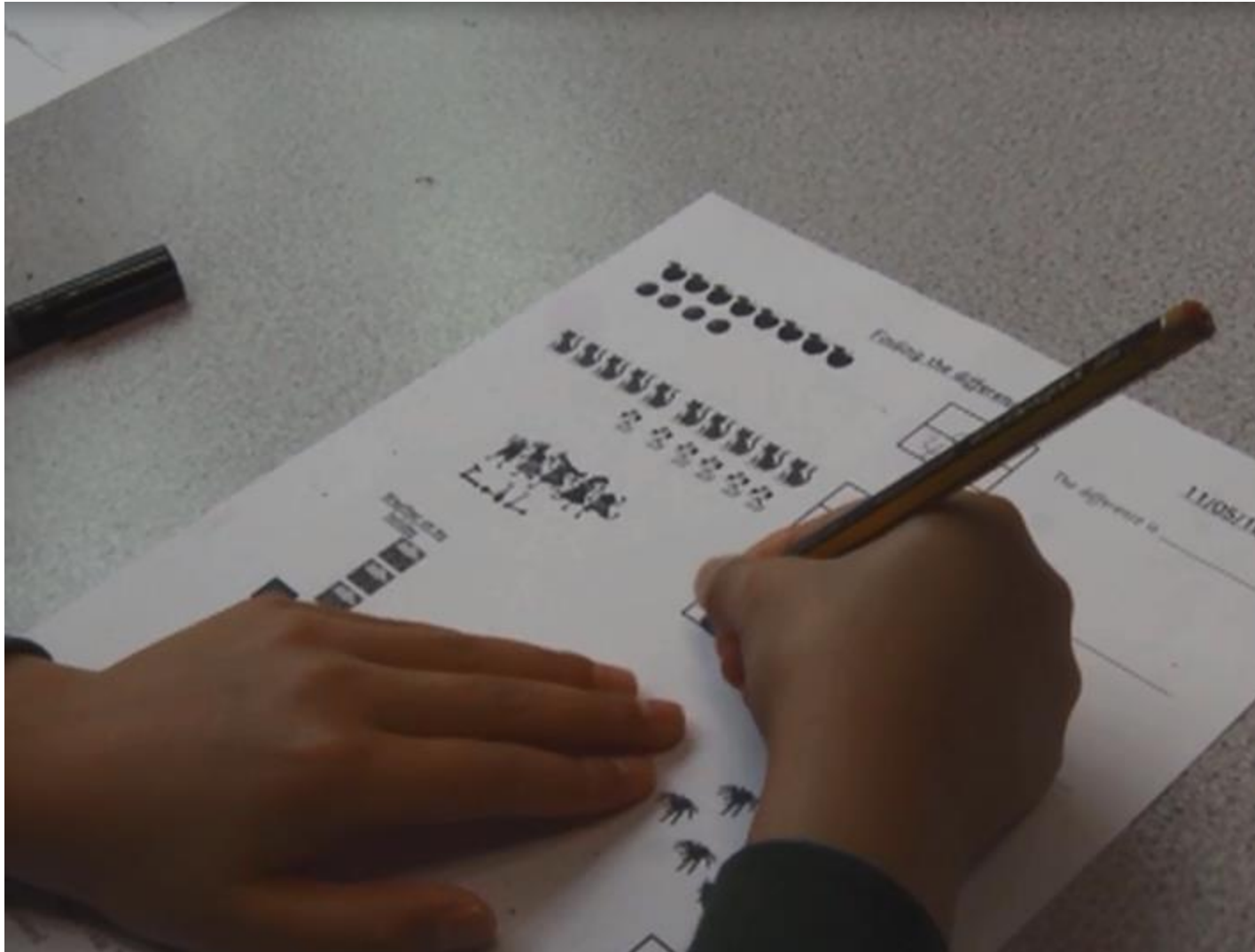
What is the difference between the number of children and the number of dinner tokens?  
How many more dinner tokens do we need?

# Representing difference with part part whole





# Video (05) - Independent Practice







# Finding the Difference

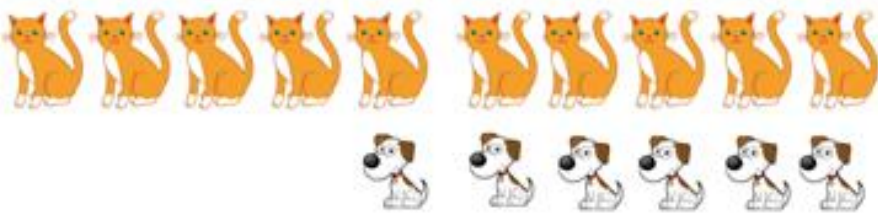
## Finding the difference

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The difference is \_\_\_\_\_



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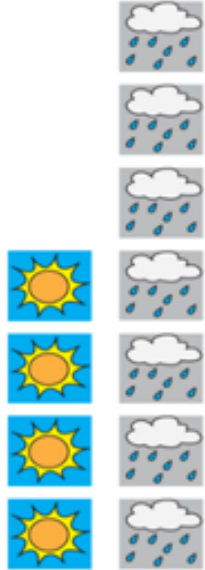
The difference is \_\_\_\_\_



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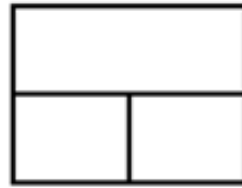
The difference is \_\_\_\_\_

Weather on my  
holiday

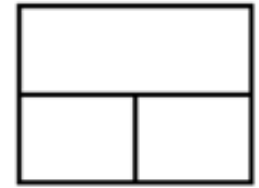


Sunny  
days

Rainy  
days



The difference is \_\_\_\_\_



The difference is \_\_\_\_\_

# The Star Challenge



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Year 1 and Year 2 have earned some house points.

There is a difference of 2 between their scores.

How many house points might Year 1 and Year 2 have?

Find many different answers!

# Features of the lesson: Ping Pong

Provides a clear and coherent journey  
through the mathematics

Provides detail

Provides scaffolding for all to achieve

Provides the small steps

# Features of the lesson: Scaffold

by putting blocks or stones together as a *Pudian*, a person can pick fruit from a tree which cannot be reached without the *Pudian* (Gu 2014 p. 340).

Small steps are easier to take than large ones

Drawing children's attention to – forcing awareness

# Pupil Support

*One of the most important tasks of the teacher is to help his students...*

*If he is left alone with his problem without any help or insufficient help, he may make no progress at all...*

*If the teacher helps too much, nothing is left to the student*

(Polya 1957)



# The NCETM



What is it?



Lesson Videos



Case Studies



Resources

# Getting involved – The Mastery Specialist Programme

National Centre  
for Excellence in the  
Teaching of Mathematics



- Mastery Specialist
- Workgroup school