# Mathematics Mastery

Step-by-step

Timing
Each session is 30 minutes
20 minute Talk Task and 10 minute independent activity

Session guidance
Get **them** talking and grow their language.

Get **them** to use equipment, manipulatives, models and images to show and explain.

Challenge **them** to think mathematically. Use the Prompts for Thinking listed below to help them to build up habits in the way they think about mathematical situations.
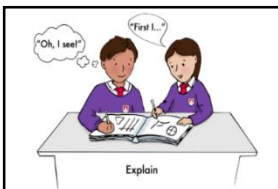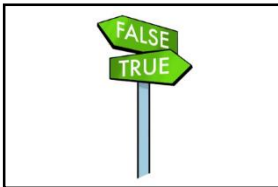
Reason it
Explain how you know. Focus on reasons rather than answers. What could you say, do, draw or write to help someone else understand?
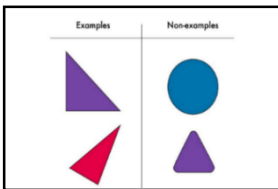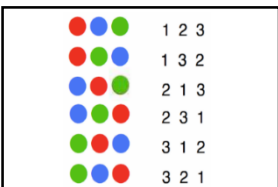
Generate examples and non-examples
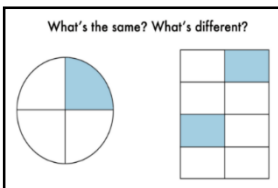What are the important features? What features are not important (e.g. colour)?

True or false?
If true, give examples to support your answer.
If false, give a counter example.

Find all possibilities
Have you found all the possible answers? How do you know? Did you work systematically?

What's the same? What's different?
Compare and contrast and look for connections.
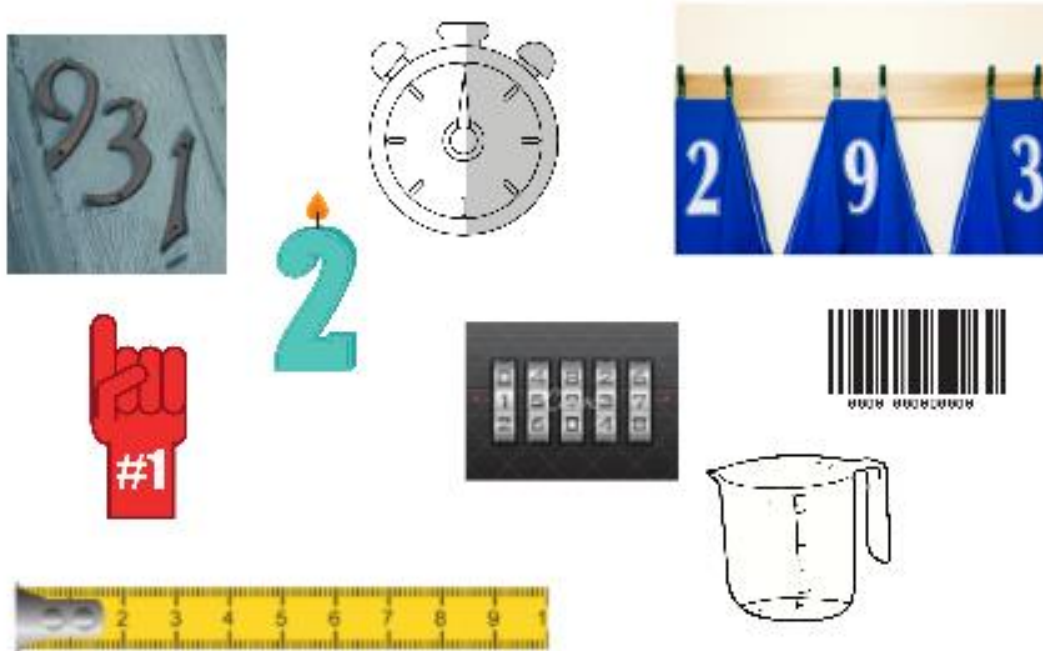How many different answers can you give?

Always, sometimes or never true?
Give examples to show if the statement is always, sometimes or never true. How do you know?
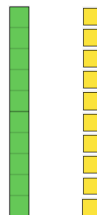
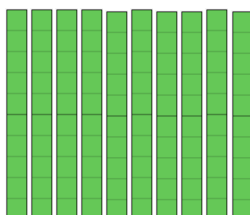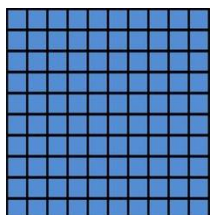**Talk Task:** What do we use numbers for?

How many people do you think there are in the school?

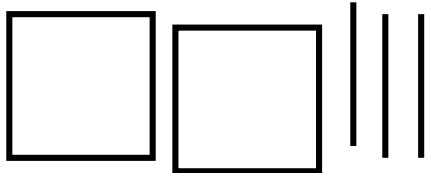Count and build

10 ones is equal to 1 ten

10 tens is equal to 1 hundred

Pack 1 Session A
Activity: Counting and grouping

1) Complete the table to show each number with Dienes and in words.

number	Dienes	words
		One hundred and fifty four
		_____ _____ _____
307		_____ _____ _____

2) If you count in steps of 10 starting at 56, will you say these numbers? Tick the ones you will say. What other numbers would you say?
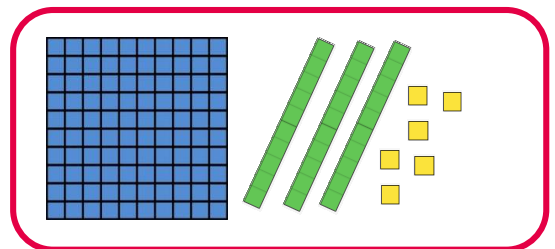
65	Ninety six
106	One hundred and ten
160	Two hundred and twenty six
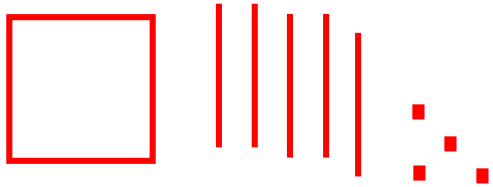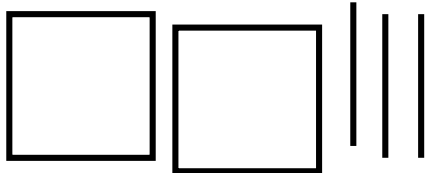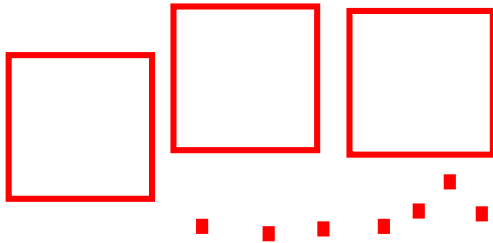
Pack 1: Number
Session A: Counting and grouping
Resources needed: Dienes thousands, hundreds, tens and ones
The purpose of this session is to get pupils talking and thinking about numbers, what they can mean and how we write them. You want to explore what pupils understand about how our number system works.

Talk Task

Use the images to discuss numbers and think about where and why they are used. Is it to count, measure, label, order, …? Encourage pupils to include their own examples.

Ask pupils to think about how they would try to work out how many people there are in the school (adapt to a familiar place with lots of people if this isn't suitable for your setting). Going through the process of thinking about this will probably involve grouping the people in some way rather than thinking about each individual, e.g. there are __ teachers, there are __ children in each class,….

Connect this experience of grouping things in order to count them with the way we write numbers. Our number system uses grouping. Discuss what they know about our number system and how it works. We use 10 digits and with them we can write any number you can think of!

Ask pupils to count from zero and show with Dienes. When they reach ten what do they do? Continue to the number 13 and ask pupils to write the number down. How can we use the Dienes blocks to show what the digits mean? The blocks allow you to see the relationship between each place in the number system. That ten ones is equal to one ten. That ten tens is equal to one hundred.

Count and build from 88 to 111. Stop every now and again and think about how to record the number you are on in digits and written words. Connect the abstract digits to the Dienes and the spoken sounds.

Count in steps of 1, 10 or 100 from different starting points both forwards and backwards.

Activity

The activity prompts connection of different representations of number that focus on place value understanding. Pupils complete a table showing a number with digits, words and Dienes. They then consider counting in steps of ten starting from 56.

Video guidance

Activity: Counting and grouping   *Answers*
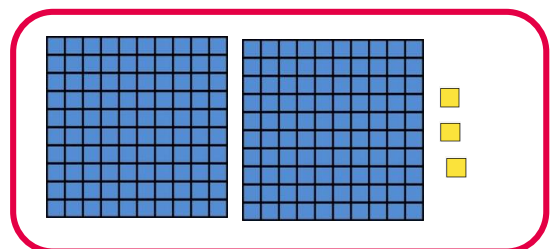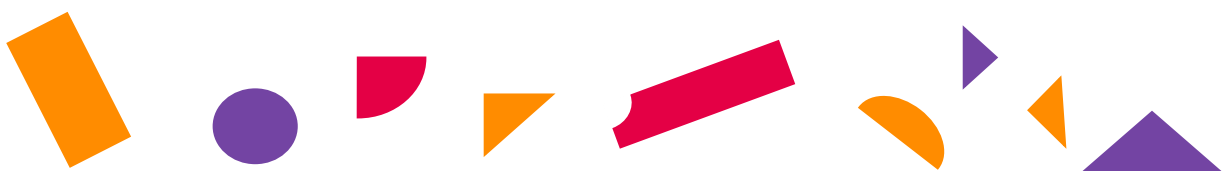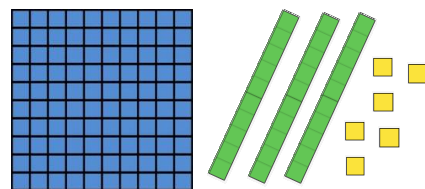
1) Complete the table to show each number with Dienes and in words.

number	Dienes	words
154		One hundred and fifty four
230		Two hundred and thirty
307		Three hundred and seven

2) If you count in steps of 10 starting at 56, will you say these numbers? Tick the ones you will say. What other numbers would you say?

Ninety six

106

Two hundred and twenty six

Any value greater than 56 with a 6 in the ones place