We © Maths

## Welcome to

## the parent and carer session

## Creating <br> 'Can do' mathematicians


"Whether you think you can or you think you can't, you're probably right."

## Henry Ford

## The aims of this meeting

- Identify some of the key concepts that children need to support their development as mathematicians
- Put the ideas in to practise
- Discuss the importance of context


## Story <br> Strafegy I Scribing





recording:
photo
drawing diagram written method summary $=$ samar .
.
context
investigation question .

 Story $\Longrightarrow$
Strategy
Scribing $\Longrightarrow$

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$\begin{aligned} & \text { context } \\ & \text { investigation } \\ & \text { activity } \\ & \text { question }\end{aligned}$
$\begin{aligned} & \text { planned teacher input } \\ & \text { concrete resources } \\ & \text { visuals } \\ & \text { images to support the } \\ & \text { photo } \\ & \text { drawing } \\ & \text { diagram } \\ & \text { WRITTEN METHOD }\end{aligned}$
$\begin{aligned} & \text { summary }\end{aligned}$
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Objective


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Objective - multiply two and three digit numbers using a

$13 \times 12$ $321 \times 14$ $72 \times 30$ $59 \times 16$ $61 \times 95$
$33 \times 11$
$171 \times 21$
$475 \times 354$
...and so on...

## Conceptual understanding

## Early multiplication

The Language of Multiplication Methods

Lots of Groups of Times Multiply
Once, twice, three times... ten times...
....times as big, long, wide... and so on
Repeated addition

## Double

Pairs
How many in each group? How many altogether?

Drawing pictures, for example:


Drawing equal groups of objects.
In this case, 3 lots of $3=9$.
Drawing equal groups of objects.
In this case, 3 lots of $3=9$.

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The Language of Multiplication

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8
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The Language of Multiplication

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## Early multiplication <br> arly

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Methods
Practical activities, for example lining up in pairs:

| The Language of Multiplication | Methods |  |
| :---: | :---: | :---: |
| X | Practical activities, for example lining up in pairs: | ary Sch |

How many altogether?

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## Early multiplication

The Language of Multiplication Methods

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Pairs
How many in each group? How many altogether?

Practical problem solving, for example:

Lego features multiplication in the number of studs on each brick .

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Using resources, such as a bead string:


In this example, showing three lots of six, or, $3 \times 6=18$


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Early multiplication

The Language of Multiplication X
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Repeated addition Double
Pairs
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Doirs

## Early multiplication



Lots of Groups of Times Multiply

Using resources, such as a number line:
$\qquad$

Once, twice, three times... ten times...
....times as big, long, wide... and so on
Repeated addition
Double
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How many in each group? How many altogether?首號

In this example, showing three lots of six, or, $3 \times 6=18$
Using resources, such as a number line:

In this example, showing three lots of six, or, $3 \times 6=18$


## Early Multiplication - REPEATED ADDITION

Underpinning ideas

The children will already understand the ideas behind addition.

They will use this knowledge to help them, identifying that multiplication is adding the same number on again and again - repeated addition.

The children will use jottings and diagrams.


$3 \times 4$ is $4+4+4=12$
This can be shown on a number line:


Or a bead string:


## Array



## Number line

Grid method

Long multiplication


## Algebra

$3 x+y=19$

# Algebra - resources 



## Algebra - resources

| $a$ | $a$ | $a$ |
| :---: | :---: | :---: |
| $2 b$ | $a$ | $a$ |
| $a$ | $b$ | $2 c$ |

All rows equal 18. What is the value of $a, b$ and $c$ ?

## Algebra - resources



All rows equal 18. What is the value of $a, b$ and $c$ ?

## Conceptual understanding

Supported by:

- Concrete resources
- Visuals
- Images
- Diagrams
- Experiences

And now, the moment you've all been waiting for!

# In class... 

- The chance to learn and practise mathematical skills
- Context
- Real life
- The children should ask - 'Why?'


## Maths is about...

- Deep inquiry
- Pattern spotting
- Making connections
- Communicating
- Looking for generalisations


Sue Lowndes 2010

Problem solving using resources to support ideas

# Have a go at one of the problems. 

## Which resources

 might help?Mr Fish wants to set up a hurdles race on Sports Day. Using the model
 of the track, let him know how many different options he has if the hurdles are to be equally spaced.

## Sealed Solution

A set of ten cards, each showing one of the digits from 0 to 9 , is divided up between five envelopes so that there are two cards in each envelope. The sum of the two numbers inside it is written on each envelope.
Which cards are in each envelope? How do you know?
Noah saw 12 legs walk by into the Ark.

How many creatures could he have seen?

How many different answers can you find?


## Online resources

- http://nrich.maths.org/4348

Thank you for coming!

# Please complete a feedback form before you leave. 

