



"Numicon is  
the best number  
system I have  
ever found,  
in 26 years  
of teaching."

Pennie Jones  
Primary school teacher

**Transforming  
the way  
children  
understand  
number**

[www.numicon.com](http://www.numicon.com)

**OXFORD**

It all started  
with a simple  
question:

# why?



**Romey Tacon**

Former headteacher,  
consultant and co-author  
of the Numicon approach

In the mid 1990s Dr Tony Wing and I voiced the question many other teachers were asking – why do so many children find maths hard when they succeed in other subjects?

We looked at how we were teaching and realised that we had been underestimating the difficulties children have understanding abstract ideas without pictures to help them.

So we set up a school based TDA research project, to see what impact structured images (Numicon Shapes and Cuisenaire rods) would have. We found that **children made remarkable progress and teachers' subject knowledge and maths pedagogy improved** as they adopted the approach.

This led to the publication of Numicon teaching resources and the development of Numicon professional development. More than ten years later, our work continues as we extend the teaching programme to support teachers as they adopt the Numicon approach.

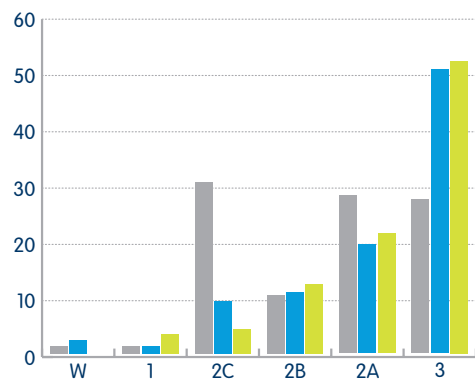
What started as a research project became a word of mouth success because Numicon can transform children's maths understanding, confidence and achievement.

# Numicon:

## The transformational approach that works

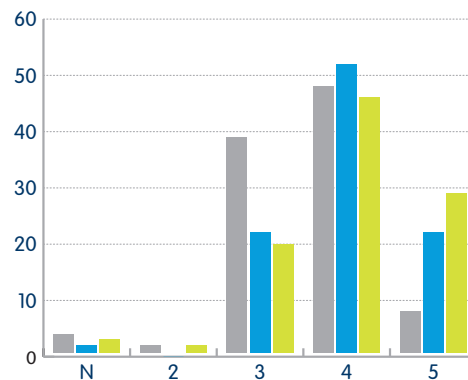
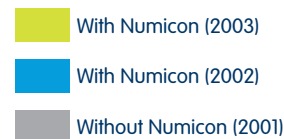
When comparing three infant school cohorts over five years we found that using Numicon led to a 47% increase in children achieving Level 3 in KS1 maths and a 72% increase in the number of those children later achieving Level 5 at KS2.

Peacehaven Infant School Mathematics SATs Levels



National Curriculum Levels  
Cohort sizes: 1997: 55, 1998: 53, 1999: 58

Hodder Junior School Mathematics SATs Levels



National Curriculum Levels  
Cohort sizes: 2001: 54, 2002: 53, 2003: 56

### Why can maths be so difficult to teach and to learn?

Maths involves abstract ideas; explaining them to children is impossible unless they understand mathematical language.

Maths also involves spotting patterns and making generalisations. This requires understanding number relationships difficult to spot just from numerals.

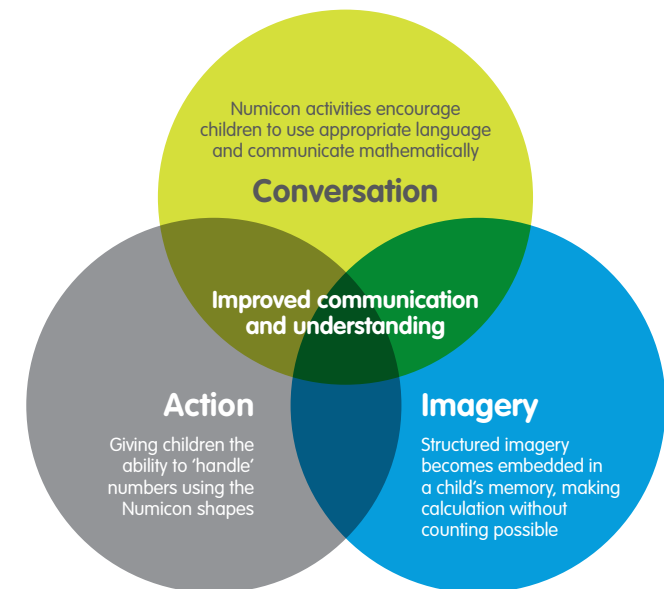
Many children have difficulty knowing when to use their 'classroom' maths in the real world. Could the reason be that traditional teaching has relied heavily on children listening and working quietly on individual tasks without apparatus?

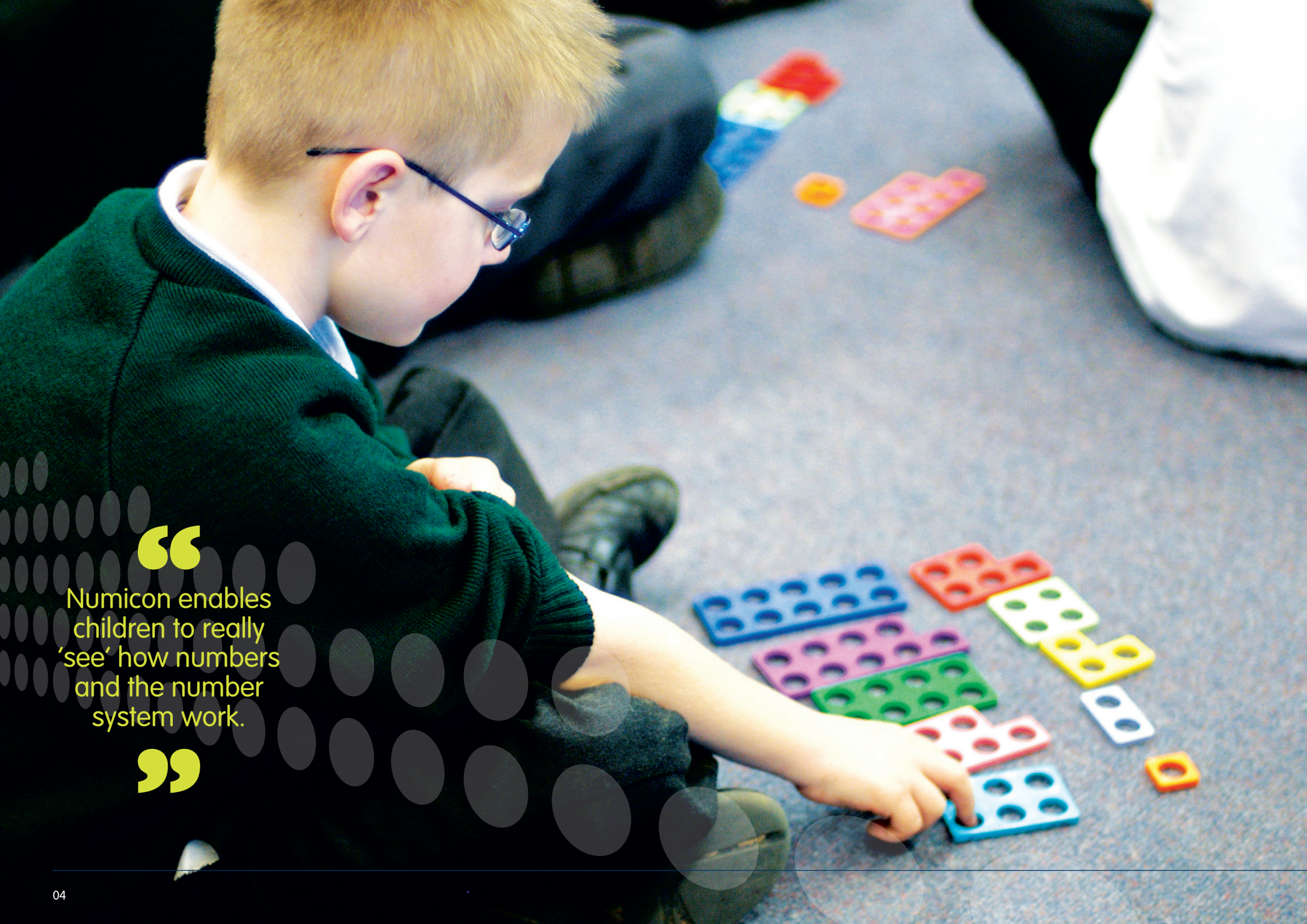
### How does the Numicon approach tackle this?

In contrast, the Numicon approach is multi-sensory, using apparatus and focusing on Action, Imagery and Conversation. The programme of activities with Numicon Shapes and rods helps children understand number relationships, spot patterns and make generalisations.

The Numicon Shapes and rods help teachers and children to communicate their ideas. Children are encouraged to work together on activities which emphasise applying understanding to solve problems.

The Numicon teaching approach helps children communicate their mathematical thinking to teachers. This in turn helps teachers 'see' a pupils' understanding.





“

Numicon enables children to really 'see' how numbers and the number system work.

”

# The Numicon approach: A teacher's eye view

Adopting the Numicon approach to maths and following the teaching programme helps children secure the essential building blocks of maths understanding, giving them the best chance to be successful in maths at primary level and beyond.

## What does it mean for children?

Children enjoy the practical open-ended activities in maths lessons, and begin to recognise the maths found in many everyday situations. By developing the classroom culture of listening and respecting one another's ideas, children of all abilities achieve more. They become confident in themselves as mathematicians and persist to find solutions.

## What does it mean for teachers?

By following the activities in the teaching guides teachers can be confident that children will be thoroughly prepared for each new idea. The explanation of key mathematical ideas is invaluable for building teachers' subject knowledge.

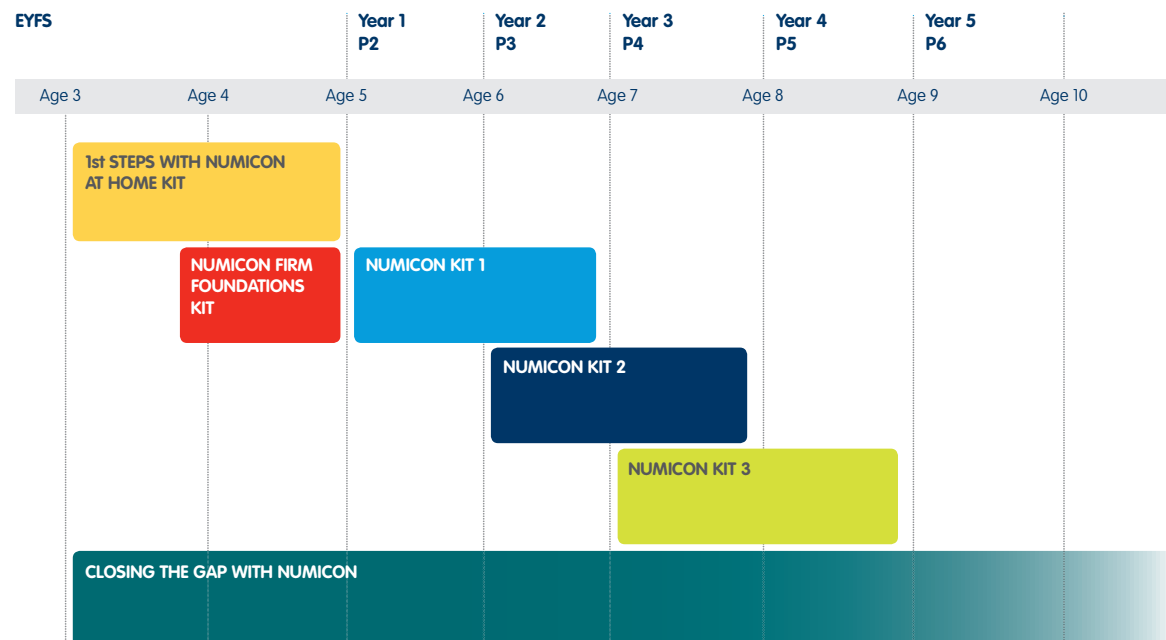
Most rewarding for teachers is seeing children understanding and enjoying maths.

## What about assessing and planning?

Seeing what children do with the apparatus and listening to what they say gives teachers reliable evidence of understanding and takes the guesswork out of assessment. The planning resources help to ensure progression and continuity across the long and medium term, while the structure and content of the activity groups help with preparing short term plans and lesson plans.

## So, what do I need?

Numicon core kits cover EYFS to NC Level 3





# Building subject knowledge: **Professional Development from Numicon**

## Raising maths achievement (there's no magic in the plastic)

Our TDA and NCETM accredited professional development helps education professionals realise Numicon's potential to **transform** children's attitudes to maths and significantly **increase** their achievement. Participants will feel inspired, confident and keen to start using Numicon straight away whether in the classroom, in support groups, or one-to-one.

## Overview of the courses

We offer a variety of flexible and bespoke courses to suit your setting and schedule, from in-school PD workshops to regional and national events.

Numicon workshops are delivered by a team of experienced and enthusiastic consultants. They are designed to help you teach maths confidently, using a multi-sensory approach with plenty of hands-on practice using Numicon resources and activities.

For more information on any of our forthcoming events or to arrange an in-school PD session, please contact [primary.training.uk@oup.com](mailto:primary.training.uk@oup.com)

National Centre  
for Excellence in the  
Teaching of Mathematics



“

A great introduction to a new concept. Excellent – clear and inspiring.

”

### Workshops

#### Full day

5 hour session

#### Half-day

3 hour session

#### Twilight package\*

2 x 2 hours

#### Follow-up twilight\*

1.5 hours

All group sizes are up to 30 participants.

For schools outside the UK please contact the international team for more information on +44 (0) 1865 354240

\*Only available in areas where a consultant is based locally.

# Developing relationships: Join the community

The Numicon website provides a hub for discussion and information. With free resources, videos and research, it's the place to find answers to any questions you may have about the approach.

## Online support: Free resources and videos

On our website you'll find a range of free resources to help develop your teaching with Numicon. Our Getting Started videos include everything from what Numicon is and why it works, to an overview of each kit. We update our free activities and display resources regularly so do keep coming back to see what's new. If you haven't visited the site before, you'll see that we have over 50 different activities to get you started.

See [www.numicon.com](http://www.numicon.com)



Website

## Keeping up-to-date with development: Numicon Works e-newsletter

Our termly e-newsletter is packed full of teaching ideas, free resources and information on how the project is developing. This is where we'll tell you about new publishing, events and professional development. We also share ideas sent to us by Numicon users, giving you some great suggestions to try in the classroom and at home.

Register today at  
[www.numicon.com](http://www.numicon.com)



Newsletter

## Local education specialists: how to get in touch

With a network of Oxford Education Specialists operating throughout the UK we can offer face-to-face support and advice on how Numicon can work best in your setting.

If you'd like to find out more, you can arrange an appointment with one of our friendly team. Call **+44 (0) 1563 452610** to find your local specialist.

For schools outside the UK, please contact the international team on **+44 (0) 1865 354240**.

“  
Trying to  
teach number  
without Numicon,  
is like trying to  
teach reading  
without pictures.  
”

## General Contact Details

[schools.enquiries.uk@oup.com](mailto:schools.enquiries.uk@oup.com)

Tel: +44 (0) 1536 452610

Fax: +44 (0) 1865 313472

## Professional Development

[primary.training.uk@oup.com](mailto:primary.training.uk@oup.com)

Tel: +44 (0) 1865 353735

## International Numicon Enquiries

Tel: +44 (0) 1865 354240

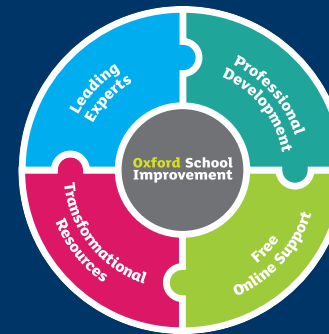
[www.numicon.com](http://www.numicon.com)

## Oxford Owl Maths support

Launching  
Autumn 2011!



[www.oxfordowl.co.uk](http://www.oxfordowl.co.uk)



### Free support.

### Just when you need it.

**Oxford School Improvement** is a hub of ideas and professional development videos from independent experts, with links to transformational classroom resources, events and over 100 free eBooks.

[www.oxfordprimary.co.uk](http://www.oxfordprimary.co.uk)

## About the Numicon Project

The Numicon Project is a collaborative endeavour to facilitate children's understanding and enjoyment of maths.

The Project was founded in the daily experience of intelligent children having real difficulty with maths, the frequent underestimation of the complexity of the ideas that we ask young children to face and a recognition of the importance of maths to them and to society as a whole.

We appreciate the complexity of these early number ideas and seek to foster the self-belief necessary to achieve in the face of difficulty; we are not about 'making maths easy'.

We believe that the combination of action, imagery and conversation helps children to structure their experiences, which is such a vital skill for both their mathematical and their overall development.

By watching and listening to what children do and say, we and many others are finding that our developing multi-sensory approach provides learners with the opportunity to play to their strengths, thereby releasing their potential to enjoy, understand and achieve in maths. This enjoyment in achievement is also shared by teachers and parents.

We strive to support teachers' subject knowledge and pedagogy with teaching materials, training and on-going feedback as we continue to develop a better understanding of how we can work together to encourage all learners in the vital early stages of their own mathematical journey.

OXFORD  
UNIVERSITY PRESS

numicon 