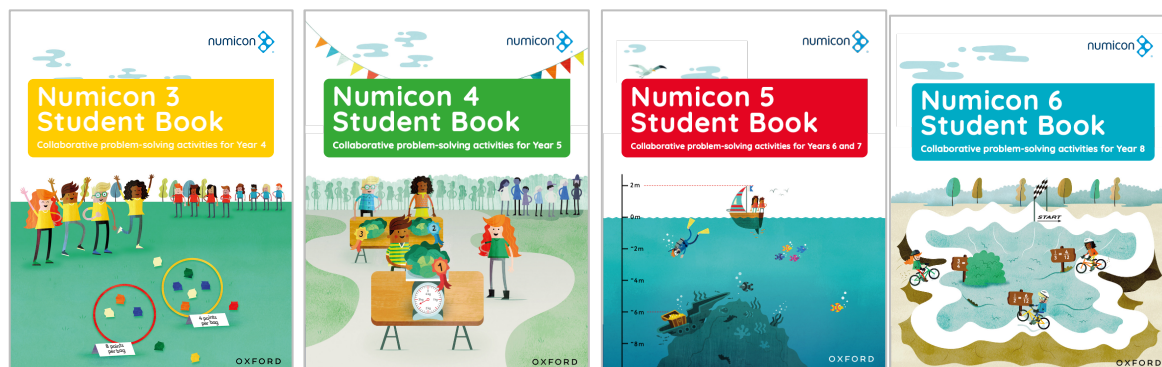


Using Numicon Student Books



Introduction

The Numicon Student Books have been created to help children develop mastery of the mathematics set out in Numicon Teaching Resource Handbook (TRH) activities. The questions in the Student Books extend children's experiences of live TRH activities, giving them the opportunity to reason and apply what they have learned, deepen their understanding, take on challenges and develop greater fluency.

Just like the teaching activities, all Student Book pages are designed to stimulate discussion, reasoning and rich mathematical communicating. The Numicon approach to teaching mathematics is about dialogue. It is about encouraging children to communicate mathematically using the full range of mathematical imagery, terminology, conventions and symbols.

Opening questions for discussion

The link to the Opening Questions is found on the online version of the TRH on the 'links' tab.

I: Adding, subtracting and equivalence Quit activity

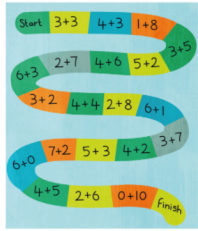
Intro Links 1 2 3 4 5 +

Links: <ul style="list-style-type: none">Full activity group overviewStarter imageWhole-class practice and discussionPhotocopy mastersImplementation guide	Next steps: <ul style="list-style-type: none">Explorer Progress Book 3a, pp. 12–13Explore More Copymaster 2: Number TriosNumicon 3 Milestone Assessment cards (NPC 3:2f)Numicon 3 Milestone Tracking chart
Student Book opening questions p. 18	
Student Book Answer Book	
IWB Software	
MyMaths	

Exploring all the combinations of numbers to 10

Practice

- 1 a How many of the adding facts on this track total 7?
b Can you find any other ways of making 7?
- 2 a How many adding facts on the track have a total of 9?
b What other ways can you find to make 9?



These opening and starter questions can be used at the teacher's discretion in all three parts of the lesson.

- at the beginning of the lesson when a teacher can create a curiosity about the maths to be covered that week or to generally assess the understanding of the children.
- in introduction to the follow-up activities in the 'working' part of the lesson.
- during the whole class discussion time at the end of the lesson for connection and reflection.

Calculating 1-1 & 1-2

All questions in the Student Books relate to specific Numicon TRH activities. At the top of each Student Book page you can find details of the Activity Group the page relates to (for example, Calculating 1). The number after the decimal point tells you which focus activities the page accompanies (so Calculating 1-1 & 2 goes with focus activities 1 & 2). *It is crucial to teach the relevant focus activities before children work on the questions.*

The Student Book questions are designed for children who are succeeding with specific TRH activities, and will invite them to think more deeply about a topic. If you find that children are struggling with a focus activity, details are given in the Teaching Resource Handbooks of other live activities, provided earlier in the progression, which you can work through together to support them until they are ready to move on.

There's a recommended order to teach the Activity Groups in and the Student Book materials follow this order of progression, too, as you'll see from the contents page. You can use this order to help children see how their ideas and understanding build upon what they have learned before.

These Student Book questions have been developed as a large bank that you can select from to best meet the changing needs of the children in your class. You can decide which questions are suitable for which children at which time, and no child is expected to find every question useful. How you choose to use the questions might also vary, for example, you may find that particular questions are useful to discuss and work through together as a class.

Practice

The 'Practice' sections target two areas. Routine practice is used to promote fluency with particular aspects or techniques. Non-routine practice questions offer challenges in varied ways designed both to improve fluency and to deepen and extend understanding. Practice for simple fluency usually comes first and the questions on each page become progressively more challenging.


Going deeper

'Going deeper' questions are designed to develop children's growing mastery of an area, challenging their understanding beyond routine exercises. In these sections, children are commonly asked to check, explain and justify their strategies and thinking. Trying to explain something clearly helps promote, and is a key indicator, of developing mastery.

Using the Student Books

Doing mathematics involves much more than logic, and children's emotions are crucially important. Thoughtful progress is more likely to happen through encouraging curiosity and good humour, and engaging with children in a polite and calm way.

This is why the phrasing and tone of Numicon Student Book questions are deliberately different from many mathematical textbooks. For example, we often begin questions for children with, "Can you ... ?" If any child says simply, 'yes' or 'no' in response, we'd suggest replying with, "Can you show me how ... ?" or "That's interesting, can you say anything about why not?" These invitations are effective beginnings to the kinds of open conversation and discussions that are at the heart of the Numicon approach.

Some Student Book questions have a pair work symbol  to signal that these require specific work with a partner, and help with classroom management. These are not the only questions where working with a partner is likely to be beneficial, however. All Student Book questions should be seen as opportunities for rich mathematical communicating between anyone and everyone in the classroom at all times, and this should be actively encouraged wherever you think appropriate. The Numicon approach is crucially about dialogue – action, imagery, and conversation.

On the bottom of the fourth page of every chapter there is a reference to the Explorer Progress book.  Explorer Progress Book 3a, pages 4–5

The EPB is designed to provide students and teachers with an opportunity demonstrate learning and applying the learning. It is part of the Assessment tools provided, along with Assessment Cards and the Tracker.

On the final pages of each book is an illustrated glossary to remind students of the words and concepts they are using and learning.

Finally, the Student Book questions are there to be enjoyed. Children who are supported, and who are succeeding, generally relish challenge and further difficulty. We hope you as teachers will also enjoy the journeys and pathways that these books will take children and their teachers jointly along.



Dr Tony Wing.