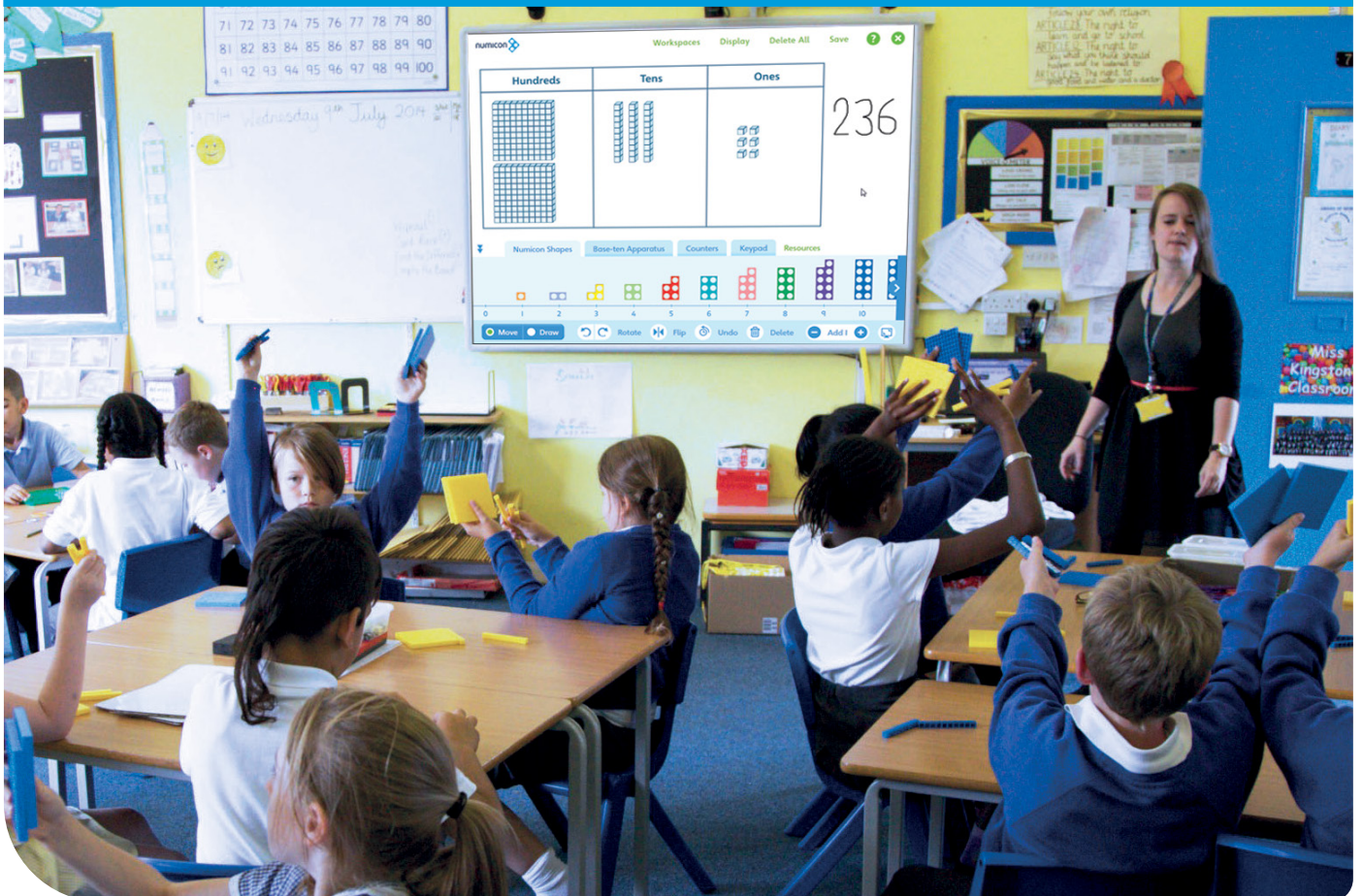


Numicon Interactive Whiteboard Software User Guide (Updated Summer 2022)



User Guide

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Numicon Interactive Whiteboard Software is a flexible tool for teaching with a wide range of manipulatives and imagery. It supports a Concrete Pictorial Abstract approach to teaching and learning mathematics at any stage.

The software is designed for use in whole-class or group sessions rather than for children to interact with alone. It can be used to support the activities from any of the Numicon teaching materials (see www.numicon.com) or any other teaching with manipulatives. It is intended to aid discussion and visualization of the physical resources used in the classroom and not as a replacement for those physical resources.

The resources featured in the software are designed to match their physical counterparts as far as is practical. Physical versions of the majority of the items in the resources panel are available from www.numicon.com, along with a range of Numicon teaching and learning materials that can be used either as a full maths programme or alongside other resources to enrich your teaching.

The software can be accessed via *Numicon Online* on www.oxfordowl.co.uk. Aside from *Numicon Interactive Whiteboard Software*, *Numicon Online* also contains a wealth of other digital resources to support teaching and learning with Numicon, from *Firm Foundations* all the way through to *Numicon 6*. This includes teacher support videos, editable planning, assessment and tracking resources, curriculum matching charts and photocopy masters.



Getting Started

Step 1: Calibrate your interactive whiteboard

It is essential that you calibrate your interactive whiteboard before every use of the software. This is to ensure the best possible user experience and accuracy when using the various resources and workspaces. If your whiteboard is not calibrated, the resources and workspaces may not respond with precision.

Step 2: Set the aspect ratio

You will be asked to select the screen size of the interactive whiteboard you intend to use to deliver your lesson (either regular 4:3 or widescreen 16:9). This is so that the software is presented to make the best use of space for your whiteboard. The software will work regardless of which aspect ratio you select. Click [here](#) for further details.

Step 3: Open a workspace

To access the workspaces menu, tap **Workspaces** at the top of the screen area. All the available workspaces will be listed in this area. The software opens in a blank workspace by default.

Step 4: Add resources to work with

The resources panel is available across the bottom of the screen area. From here, all your resources such as the Numicon Shapes, number rods, interlocking cubes, pictures and spinners can be accessed. Click or drag a resource from the resources panel to add it to a workspace.

Step 5: Label and annotate your work

A keypad is available in the resources panel and can be used for typing text, numerals, symbols or fractions. You can also type into text boxes using your device's keyboard. You can select the **Draw** mode to annotate your workspace using the pen, highlighter or line tool. Select **Move** mode to return to the full workspace functionality.

Step 6: Save your work for later

Whether you wish to prepare on a laptop in advance of a lesson or save your work from a lesson for another day, you can have up to 50 saved files and return to them at a later date. The **Save** button is located at the top right of the screen area.

For help, please see the *User Guide* or contact the support team on:

Email: owlsupport@oup.com

Phone: +44 (0) 1536 452960



Supporting maths teaching with
inspirational resources, advice
and professional development
www.oxfordowl.co.uk

For browser and system requirements, please go to:

<https://www.oxfordowl.co.uk/pages/q-which-browsers-work-with-oxford-owl>

Calibrating Your Interactive Whiteboard

It is essential that you calibrate your interactive whiteboard before every use of *Numicon Interactive Whiteboard Software*. This is to ensure the best possible user experience and accuracy when using the various resources and workspaces.

For help with calibration, please find the user instructions for your interactive whiteboard. For example:

Promethean

<https://support.prometheanworld.com/>

Smart

<https://home.smarttech.com/>

Aspect Ratio

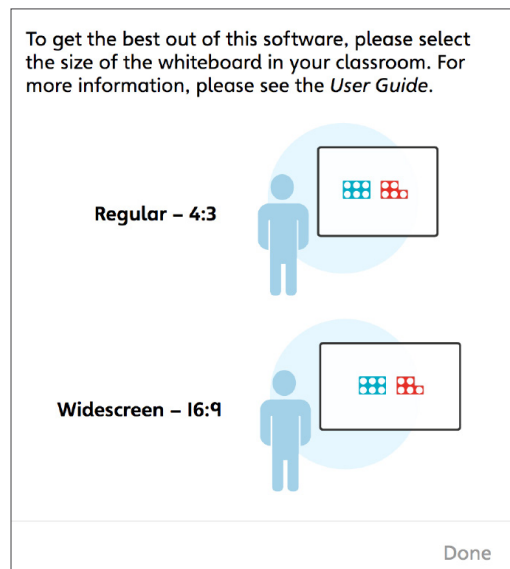
Before you start using *Numicon Interactive Whiteboard Software*, you will be asked to select the screen size (aspect ratio) of the interactive whiteboard you intend to use to deliver your lesson. This is so the software is presented to make the best use of the available space on your interactive whiteboard.

You should choose between either a regular screen size of 4:3 or widescreen at 16:9*.

NB: It is the size of your interactive whiteboard screen you need to select – not the display size of the laptop or computer you are using to plan your lesson.

Tap on the picture of the whiteboard to select it (a green tick will appear next to the selected option) and then tap **Done**.

For any saved files, the system will remember your choice of aspect ratio.



* The software will work regardless of which aspect ratio you select. If in doubt, please check the user guide for your interactive whiteboard, or (as a default) select 4:3.

Teacher Controls

Workspaces

Access all the workspaces here. For further detail on workspaces, see pages 9 and 13.

Display

Click here to view background grid and colour options. See page 6.

Delete All

Delete All allows you to delete all textboxes, resources or annotations made using the annotation tools*.

**Delete All will not delete any annotations made using your interactive whiteboard tools. It will only delete annotations made with the tools in this software.*

Save

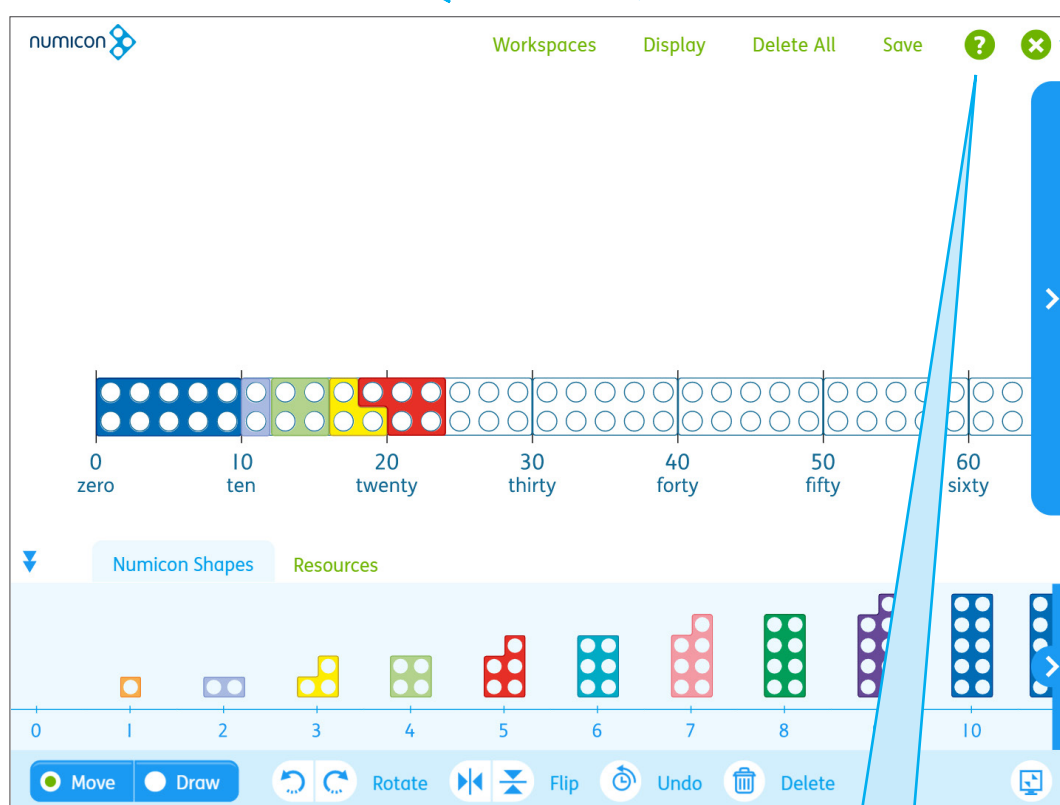
Click here and follow the prompts to save your work. This will allow you to return to your lesson at a later point.

Exit

To exit the software, tap the green cross at the top right of the screen. If you have made changes, you will be asked if you would like to save your work before leaving the software.

Scrolling

Some workspaces can be scrolled to the right or left to display further content. Look for the blue right/left scroll bars.



Help

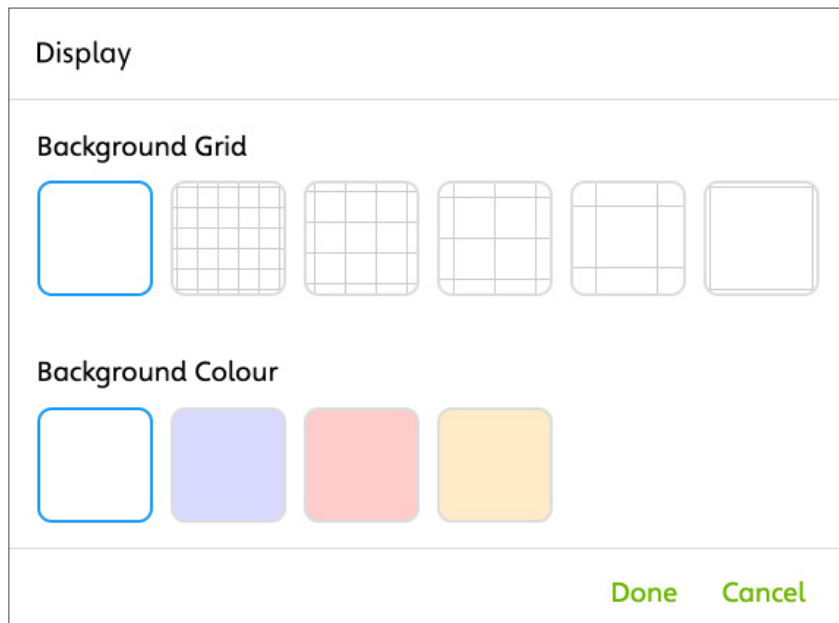
For help with using *Numicon Interactive Whiteboard Software*, please click the question mark. This will open the *User Guide*. Alternatively, contact the Support team on:

Email: owlsupport@oup.com

Phone: +44 (0)1536 452960.

Display

The Display menu can be found by clicking **Display** at the top of the screen. From this menu, you can access the range of background grid and background colour options.



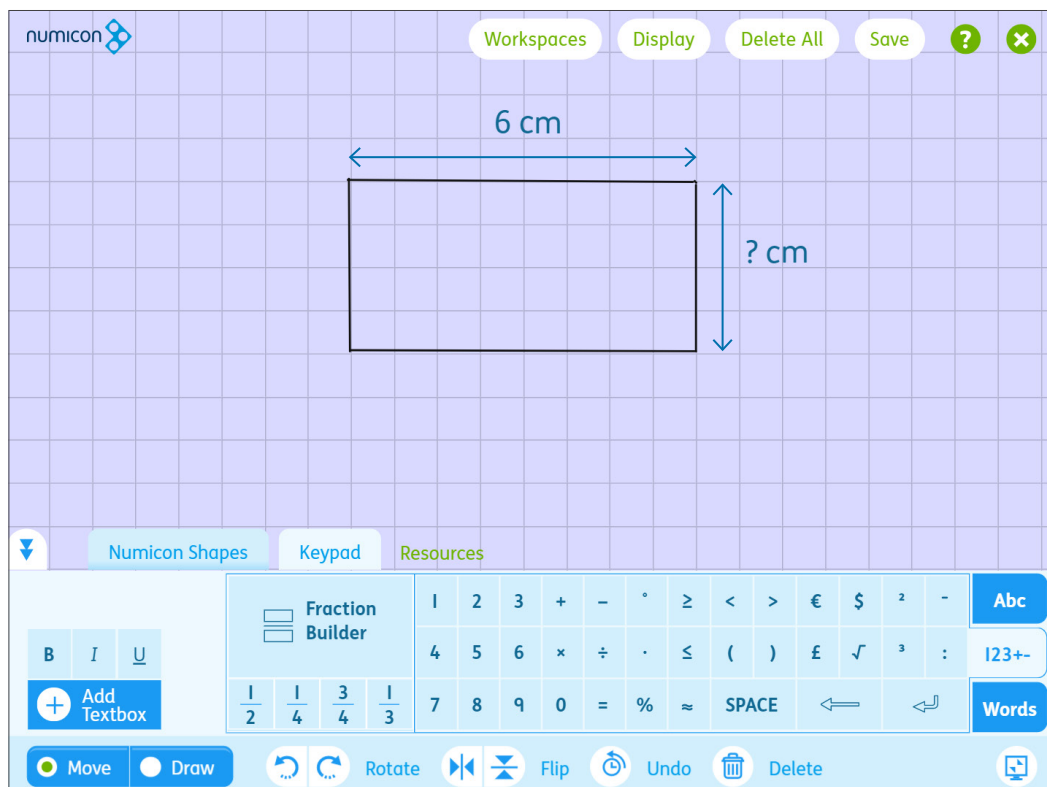
Background Grid

Tap to select from various different sizes of grid squares. A blue outline will appear around your selected grid.

Background Colour

Tap to select from four colour options. A blue outline will appear around your selected colour.

Tap **Done** to apply your selected background options or **Cancel** to close the menu.



Background grids can be used to create various models, such as for area and perimeter or vertical algorithms.

Saving to My Numicon Files

Numicon Interactive Whiteboard Software offers the option of saving your progress. Whether you wish to prepare on a laptop in advance of a lesson or save your work from a lesson for another day, you can have up to 50 saved files that you can return to at a later time.

Save is located at the top right of the screen area. Tapping **Save** will open the save dialogue.

The screenshot shows a dialog box titled "Save all workspaces" with a close button (X) in the top right corner. It contains two input fields: "Name" with the text "Untitled" and "Description" with an empty text area. At the bottom, it displays "2 (of 50) saved files used" and three buttons: "Save as", "Save", and "Cancel".

Name
Type a unique name for your file in this field.

Description
Add a description so you can easily identify what is in the file or lesson when you return to it at a later date.

Exit
Tap to exit the save dialogue. Any changes will not be saved.

Number of Saved Files
The number of files you have saved in My Numicon Files is noted here. You can save up to 50 different versions. If you try and save more than 50 files, you will be prompted to delete unwanted or older files before you can save any further versions.

Save and Save As
When you open the original version of *Numicon Interactive Whiteboard Software*, you can make as many changes to as many workspaces as you choose. When you tap **Save**, it will open the save dialogue. You will need to name your file, add a description, and then tap **Save**.
If you reopen and edit any of your previously saved files, you can choose to either tap **Save** and overwrite the file, or you can **Save As** and create a new version of the file with a new name.

Cancel
Selecting **Cancel** will close the save dialogue without saving any changes.

If you make any changes to the workspaces and click to exit the software, you will be notified that you have unsaved changes and will be given the opportunity to save before leaving the software.

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My Numicon Files

Your saved files will be saved to the My Numicon Files list in Oxford Owl at:

<https://www.oxfordowl.co.uk/direct-link/numicon-iwb-software>

Oxford Owl Hello Teacher One

Home Planning and Curriculum Support **Numicon IWB Software** Numicon Teaching Handbooks Firm Foundations

Numicon IWB Software

Numicon IWB Software is a flexible tool for teaching with manipulatives at any stage.

It provides a wide range of apparatus and imagery to support a Concrete Pictorial Abstract approach.

See the [User Guide](#) (updated autumn 2020) for full information about how to use the software.

NEW IWB Ideas: short videos with supporting notes to get you started.

The Numicon IWB Software is available as part of a Numicon Online subscription, find out more [here](#).

Your saved files will appear underneath the default software in the list below.

My Numicon Files

Search

Showing 1-1 of 1 saved files.

Delete selected

<input type="radio"/>	Name	Date created/modified	Created by	
<input checked="" type="radio"/>	Numicon Interactive Whiteboard Software This is the default Numicon IWB software, which allows you to save your work. The saved files will appear below the default software in this list.		Oxford Owl	
<input type="radio"/>	Equivalent fractions Fractions activity to use with Year 6	Created: 27 Jun 2022 Modified: 28 Jun 2022	Teacher One	

User Guide

The *User Guide* can be accessed at any time by clicking on this link.

Search

The search field allows you to enter a keyword(s) to search for in the My Numicon Files list.

Deleting Files

To delete an unwanted file, select the circle to the left of the filename and click **Delete Selected**. You will be prompted to confirm that you do want to delete your file to avoid accidental deletions. You can also click the circle next to the **Delete Selected** button to select and bulk delete all the visible files in the list.

Master Files

The original *Numicon Interactive Whiteboard Software* can always be found at the top of the My Numicon Files list.

Saved Files

The rest of your saved files will appear below the original master *Numicon Interactive Whiteboard Software*.

Sorting Files

The files in My Numicon Files can be sorted by their name or by the date they were created/modified. Sorting by name is alphanumeric. Sorting by date uses the modified date of the file.

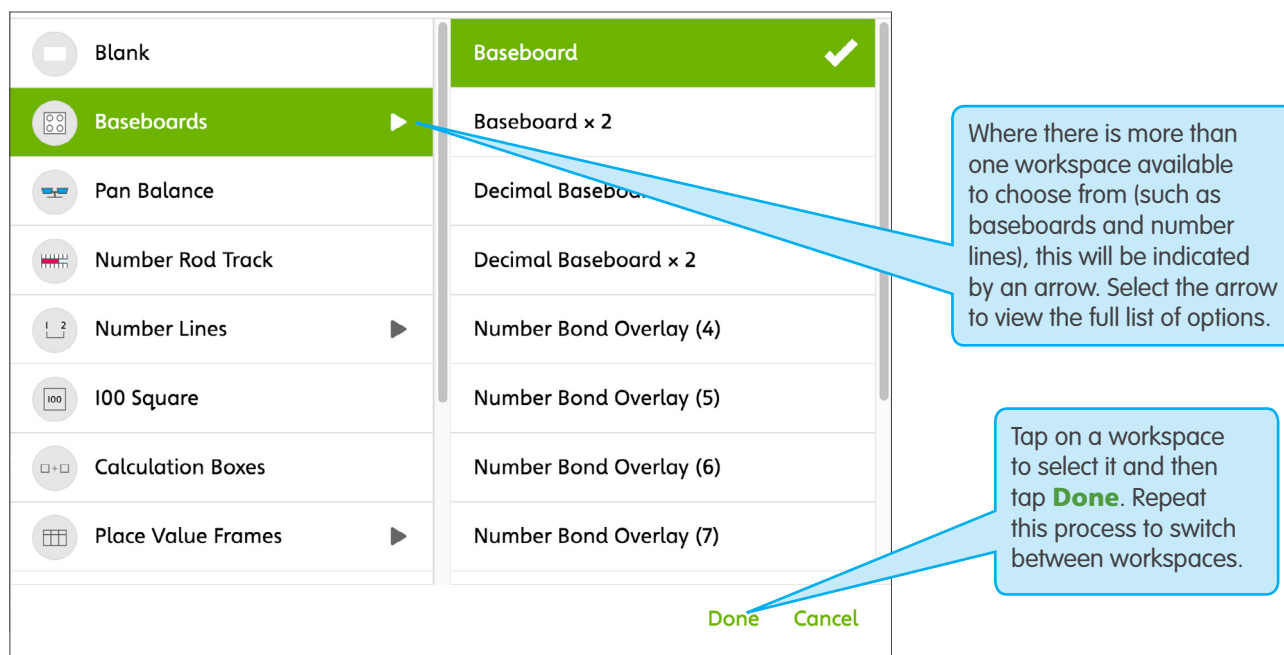
Play

Select **Play** to open the software.

Workspaces Menu

For a full list of workspaces, see page 13.

To access the workspaces menu, tap **Workspaces** at the top of the screen. All the available workspaces will be listed in this area.

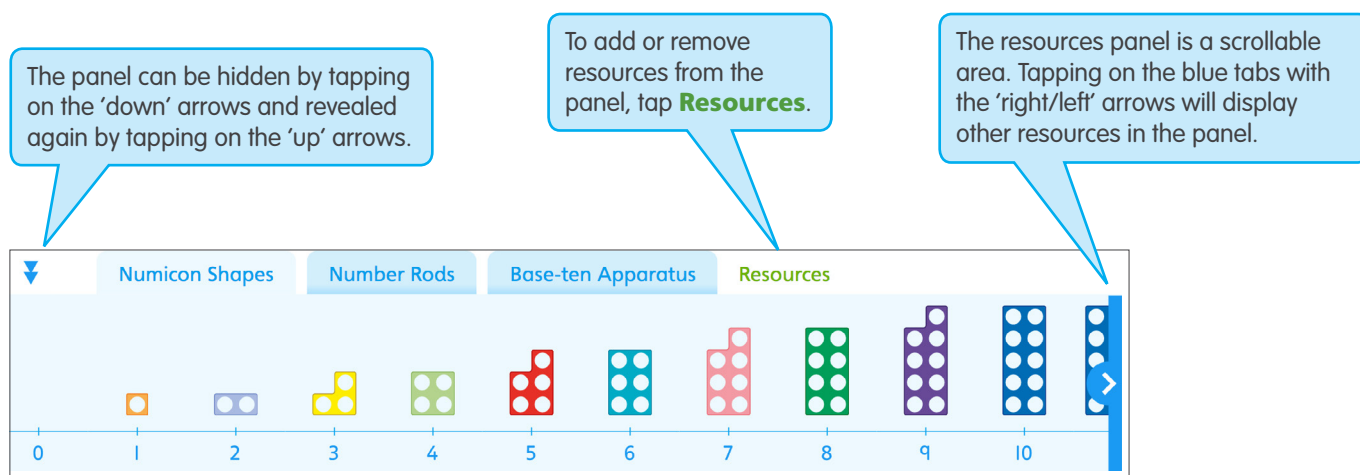


In the example above, a single Baseboard workspace has been selected.

Resources Panel

The resources panel is available across the bottom of the screen area. This is the area where resources such as the Numicon Shapes, number rods, interlocking cubes, pictures and spinners can all be accessed.

When you select a workspace, the resources panel will display the resources that are most relevant to that workspace. However, you can open and close any of the resources to suit your lesson. Your resources panel selections are specific to each workspace.



Your resources will be displayed in the resources panel across the bottom of the screen.

User Guide

To add a resource, tap on it (a resource will be highlighted green with a tick when selected) and then tap **Done**. To remove a resource, tap on it to deselect it. Then tap **Done**. You always have to have at least one resource selected.

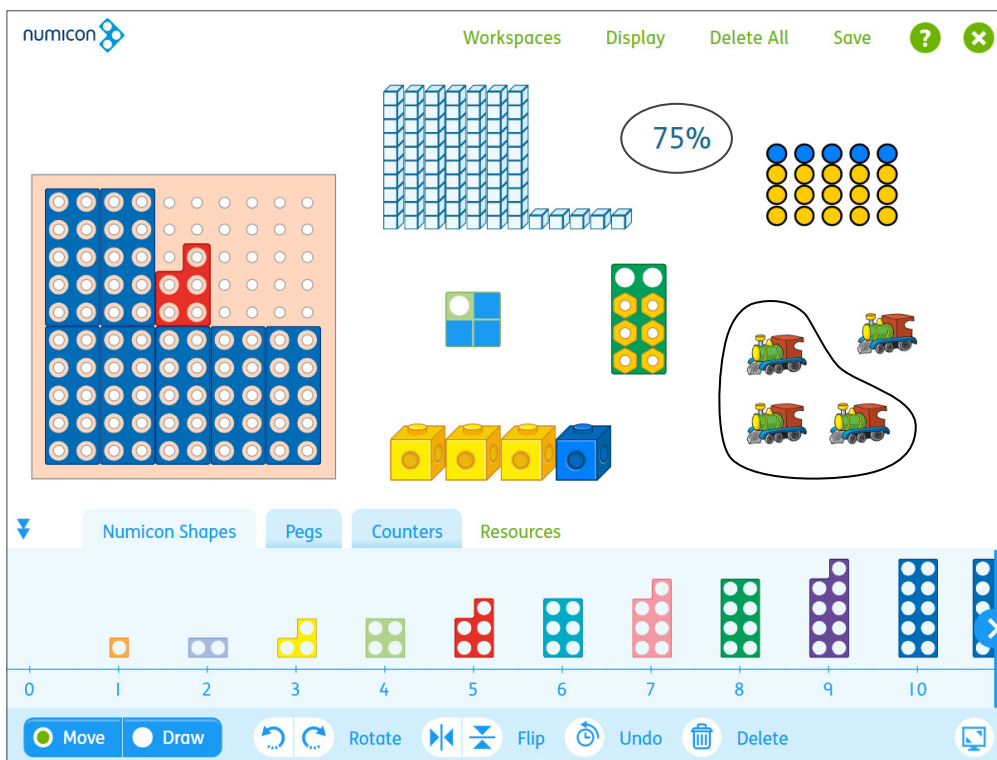
There are two different ways to select resources and move them onto your workspace area:

1) Dragging resources into a workspace

You can drag resources from the resources panel and drop them into the workspace. You can then reposition them as you choose.

2) Tap-to-add resources to a workspace

You can also tap on resources in the resources panel and they will appear in the workspace.



Here, several resources have been added to a blank workspace to model 75% in various ways. The counters have been selected using the group select feature (see page 11).

Group Select/Select All

Group select (marquee select) offers an efficient way to select several or all resources at the same time. Tap near the corner of the group and then hold down and drag the cursor across the items you wish to select. A dotted outline will show which items are included in your selection. When you drop the cursor, the selected items will be highlighted and will be treated as a group. If you are working on a keyboard, you can also hold down either the CTRL button (PC) or Command button (Mac) and click on each resource to group select them. You can move, flip, rotate or delete the group. To deselect a group, simply tap elsewhere in the workspace.

Move Mode Controls

The following controls are available at the bottom of the screen when in **Move** mode. The **Move** mode selector is at the bottom left of the screen.

Rotate Clockwise/Anti-clockwise allows the user to rotate a selected resource in either a clockwise or anti-clockwise direction. Each tap will rotate a selected item by 90 degrees. Multiple items can also be selected (see 'Group Select' above) and rotated as a group.

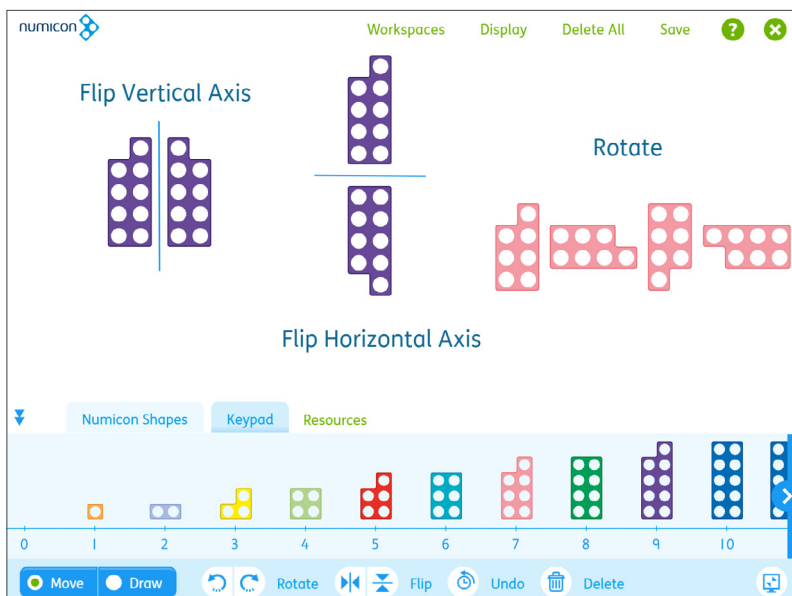
Undo will undo the last action.

Fullscreen opens the software in a full screen view. Tap 'Esc' to exit the full screen view or tap this button again.



Flip allows the user to flip/reflect a selected resource, such as a Numicon Shape, across its vertical axis or horizontal axis. Groups of selected items can also be flipped.

Delete will delete a selected item or resource. **Delete All** (found at the top of the screen) will delete all resources, textboxes and annotations within the workspace.



This example shows how resources, such as the Numicon Shapes, can be flipped and rotated.

Draw Mode

By default, the move/draw mode is set to **Move** so that items can be freely accessed and moved around the screen. Selecting **Draw** opens the annotation tools.

The annotation tools include a pen, a highlighter and a straight line tool. There are various colour options to select from. There is also an eraser which can be used to erase annotations made using the annotation tools within *Numicon Interactive Whiteboard Software*.

Select **Move** to close the annotation tools and return to the full workspace functionality.

Please note that the annotation tools within *Numicon Interactive Whiteboard Software* are separate from the tools that come with your interactive whiteboard. This means that, for example, your whiteboard eraser will not be able to erase annotations made using the drawing tools in the software or vice versa.

If you would like to be able to save any of the annotations you make within the software, then you must use the annotation tools that are part of *Numicon Interactive Whiteboard Software* and not your whiteboard tools.

Pen
To use the pen tool, tap the pen icon. The pen colour can be changed by selecting one of the colour swatches. Draw or write on the workspace with your finger or mouse pointer.

Eraser
Tap the eraser icon to select the eraser tool. Move your finger across the annotations you would like to erase.

Highlighter
To use the highlighter tool, tap the highlighter icon. The colour can be changed by selecting one of the colour swatches. Use your finger or mouse pointer to highlight elements on the screen.

Straight Line
Tap the line icon to select the straight line tool. Tap and drag to create your line. Alternatively, you can create a line by tapping a start and an end point for the line (a line will be drawn between the two points).

Colour Palette
There are six colour options to choose from and these can be applied to the pen, highlighter or line tool.

Workspaces

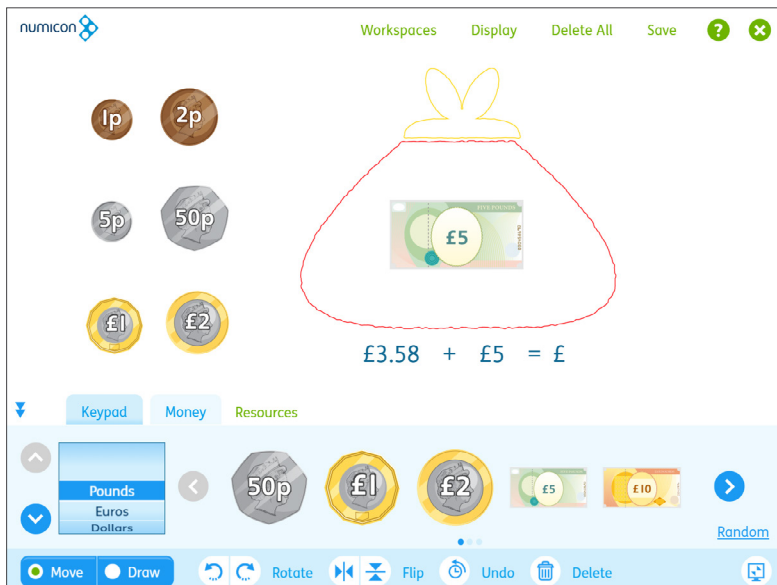
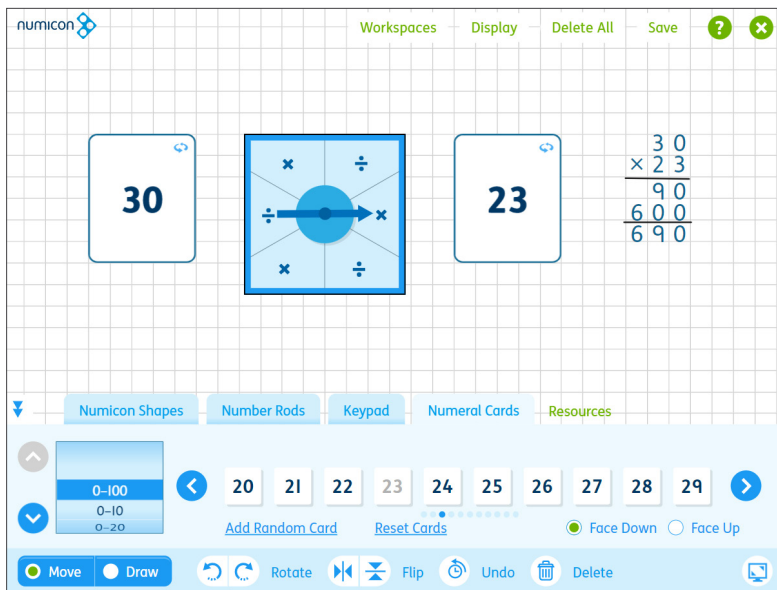
Numicon Interactive Whiteboard Software features the following workspaces:

- Blank
- Baseboards
- Pan Balance
- Number Rod Track
- Number Lines
- 100 Square
- Calculation Boxes
- Place Value Frames
- Multiplication Grids
- Sorting Rings (Venn Diagrams)
- Carroll Diagrams
- Part-Whole and Number Trios
- Times Table Square
- Bead Strings
- Bar Model
- 10-Frames
- Graph Axes
- Fraction Wall
- Gattegno Board

To choose a workspace, tap **Workspaces**, select your desired workspace and tap **Done**.

Blank

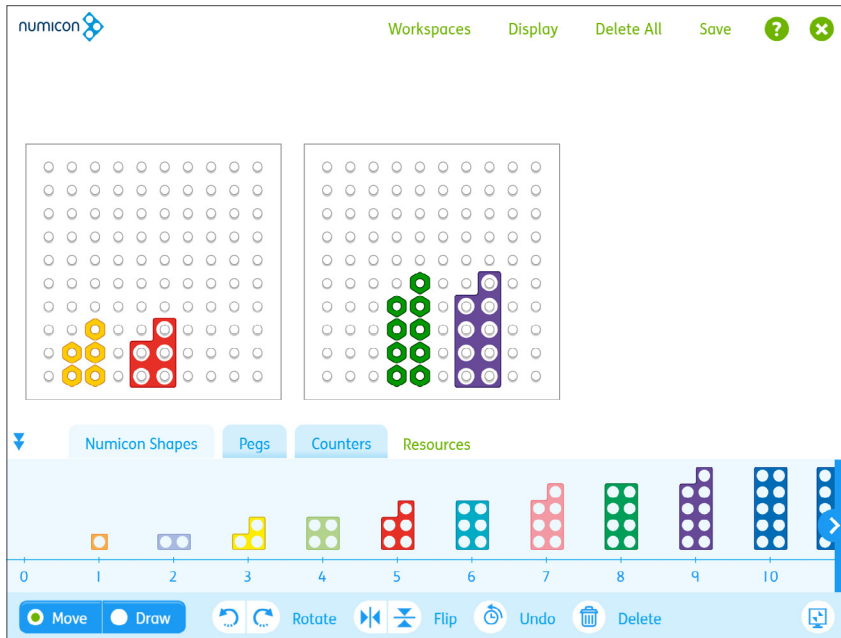
The blank workspace is particularly versatile and can be used with any of the resource sets to model different mathematical concepts. The software opens in a blank workspace by default.



User Guide

Baseboards

The Baseboard has 100 points (10 × 10). Each point corresponds to a single hole in a Numicon Shape or to a peg. Potential activities include creating repeating patterns with the pegs or exploring number bonds using the Numicon Shapes and overlays.

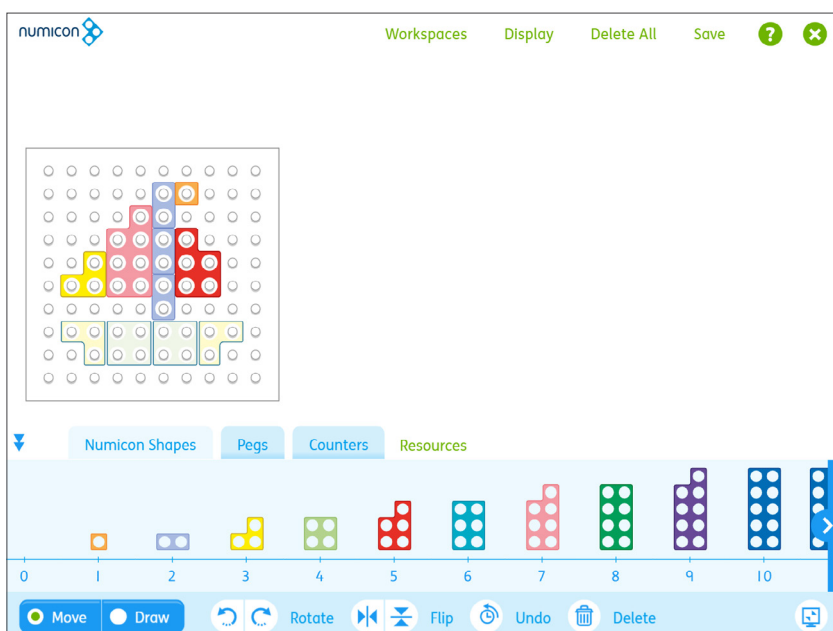


Decimal Baseboard

The orange Decimal Baseboard can be used for demonstrating decimals and percentages. It is a possible representation of an expanded Numicon 1-Shape. Through carefully scaffolded progression, children can begin to use Numicon Shapes on the Baseboard to represent decimal parts of numbers.

Baseboard Overlays

The Baseboard Number Bond Overlays are available to help practise number bonds from four to ten and are useful for addition activities. The picture overlay can be used for matching activities and to develop familiarization with the Numicon Shapes.



User Guide

Pan Balance

Add resources such as place value counters, Numicon Shapes or number rods to either side of the Pan Balance to show equivalence and help children to understand that '=' means 'of equal value'. The Pan Balance can also provide powerful imagery in activities relating to balancing/missing number sentences or in algebra work.

Resources inside the Pan Balance can either be dragged out, or deleted using **Delete All**. They cannot be individually selected, deleted, rotated or flipped whilst still inside the pan. The keypad or pen tool can be used to create number sentences that describe what is happening in the balance.

The Pan Balance has three balance states:

- balanced
- small difference (3 or less)
- large difference (4 or more).



User Guide

Number Rod Track

The number rod track is numbered from 1 to 100 and is designed to fit the number rods. It can be used for teaching place value, partitioning, bridging through decades, addition and subtraction, and multiplication and division. Number rods are automatically added to this workspace in a horizontal orientation for ease of use.

The screenshot shows the Numicon Interactive Whiteboard Software interface. At the top, there is a header with the Numicon logo and several menu items: Workspaces, Display, Delete All, Save, a help icon (?), and a close icon (X). Below the header, there is a workspace area with a grid of number rods. The rods are arranged in two rows. The top row has rods for 10, 20, 30, 40, and 50. The bottom row has rods for 10, 20, 30, 40, and 50. A subtraction problem $59 - 25 =$ is displayed on the right side of the workspace. Below the workspace, there is a toolbar with icons for Move, Draw, Rotate, Flip, Undo, and Delete. At the bottom, there are tabs for Numicon Shapes, Number Rods, Keypad, Subtraction Covers, and Resources. A number line is visible at the bottom of the workspace, numbered from 19 to 63.

Number Lines

There are a variety of different number lines available. Where a number line needs extra space, scroll bars are available so you can scroll to view the full number line from the start to the end.

- **Numicon 10s Number Line (With Numbers)**

Use with the Numicon Shapes, which perfectly fit within the 10-Shape outlines. This helps children to develop a 'feel' for the cardinal value of numbers to 100 and connect this to place value. Numicon Shapes are automatically added to this workspace in a horizontal orientation for ease of use.

- **Numicon 10s Number Line (No Numbers)**

- **0–100 cm Number Line**

The points on this number line are 1 cm apart and are labelled from 0 to 100. The number line is divided into decade sections, distinguished alternately in red and blue, to help children find the '10s' numbers. The number rods fit to this number line and are automatically added to this workspace in a horizontal orientation for ease of use.

- **0–1 Number Line**

- **0–1.01 Decimal Number Line**

With markings at every thousandth, hundredth and tenth to support the teaching of decimals.

- **0–31 Number Line (Small)**

A 0–31 number line with all the numbers visible in the screen area. Use this number line to work with wider number ranges such as 0–21.

User Guide

- **0–31 Number Line (Large)**

A 0–31 number line that has been ‘zoomed in’ so that only around 12 numbers are visible in the screen area. Use this number line to work with smaller number ranges such as 5–10.

- **Numicon 0–41 Number Rod Number Line**

- **Fraction Number Line (Blank)**

This number line starts at zero and has fifty unlabelled points, which can be labelled to suit whichever fractions children are working with.

- **Blank Number Line**

Create your own number line and use the keypad or drawing tools to add on numbers and markings.

- **3 Blank Number Lines**

Three empty number lines for demonstrating and comparing more than one number line at a time.

- **Vertical Number Line (Blank)**

This number line could be used for demonstrating concepts such as temperature or negative numbers. Add your own markings and numbers using the keypad and drawing tool.

- **Blank Before/After 0**

- **–12–12 Number Line**

- **–10–10 With Numicon Shapes (1)**

This number line (along with –10–10 With Numicon Shapes (2)) can be employed as a visual representation of positive and negative numbers from –10 to 10. Numicon Grey Shapes can be used to indicate the negative numbers.

- **–10–10 With Numicon Shapes (2)**

- **Circular Number Line**

Add your own markings and numbers using the keypad and drawing tools. This number line has 12 markings to represent a clock face but could also represent weighing scales.

- **Jug Number Line**

Add additional markings and numbers to illustrate volume and capacity.

- **Thermometer Number Line**

Use this number line to discuss temperature. Add your own numbers and labels to demonstrate positive and/or negative temperature ranges.

The screenshot displays the Numicon software interface. At the top, there are menu options: Workspaces, Display, Delete All, Save, a help icon (?), and a close icon (X). The main workspace shows a horizontal number line from 0 to 15. Above the line, fractions are placed at specific intervals: $\frac{1}{10}$, $\frac{2}{10}$, $\frac{1}{4}$, $\frac{3}{10}$, $\frac{2}{5}$, $\frac{1}{2}$, $\frac{6}{10}$, $\frac{7}{10}$, and $\frac{3}{4}$. Below the line, every integer from 0 to 15 is labeled with a denominator of 20, representing tenths: $\frac{0}{20}$, $\frac{1}{20}$, $\frac{2}{20}$, $\frac{3}{20}$, $\frac{4}{20}$, $\frac{5}{20}$, $\frac{6}{20}$, $\frac{7}{20}$, $\frac{8}{20}$, $\frac{9}{20}$, $\frac{10}{20}$, $\frac{11}{20}$, $\frac{12}{20}$, $\frac{13}{20}$, $\frac{14}{20}$, and $\frac{15}{20}$. A blue vertical bar on the right side of the workspace contains a right-pointing arrow. At the bottom, there is a toolbar with various icons for editing and drawing. A keypad is visible, featuring a 'Fraction Builder' section with a grid of numbers and symbols, and an 'Add Textbox' button.

The Fraction Number Line (Blank) can be annotated to reflect the fractions children are working with.

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100 Square

The 100 square workspace is ideal for showing patterns in multiplication. There are two options available for the organization of numbers in the 100 square, either starting with number 1 in the top left square or starting with 1 in the bottom left square.

The 100 square appears as a blank array with the **Show/Hide Numbers** state selected by default. Touch a square to reveal its number. Touch it again to clear it. You can also swipe across whole rows to reveal/hide the numbers. Selecting **Move Rows** will allow you to move and rearrange the rows. Selecting **Colour Squares** and choosing a colour will allow you to add colour to the cells in the 100 square. **Reset All** returns the 100 square to its starting state.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

25 prime numbers

You can add split colours to a square to demonstrate concepts such as identifying common multiples.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

This example shows the common multiples of 5 and 6 where the lowest common multiple is 30.

User Guide

Calculation Boxes

The calculation boxes have three cells available by default for the calculation. To add or remove cells, tap the three dots to the right of the cells and select from the options. Use this same method to add or remove further calculation rows.

The symbols between the boxes can be changed to allow a wide choice of calculations to be demonstrated. Tap the symbols to cycle through the available options (+, −, ×, ÷, =). Tap in a calculation box to activate it and then use the keypad or your keyboard to input numerals, text or fractions into the cells.

If you know that	2.4	×	2	=	4.8	⋮
Then you also know that	2.4	×	20	=	48	⋮
And so	2.4	×	200	=	?	⋮

Place Value Frames

Type or write numbers in the place value frames to demonstrate ideas around place value. You can also add place value counters, base-ten apparatus (select the small base-ten option), Numicon Shapes and number rods to the different columns of the frames. There are various place value frames to choose from, including some blank options so you can create your own:

- Blank (5 Columns)
- Blank (7 Columns)
- T O
- H T O
- Th H T O
- TTh Th H T O
- M HTh TTh Th H T O
- O-t
- T O-t
- Th H T O-t h th
- Money

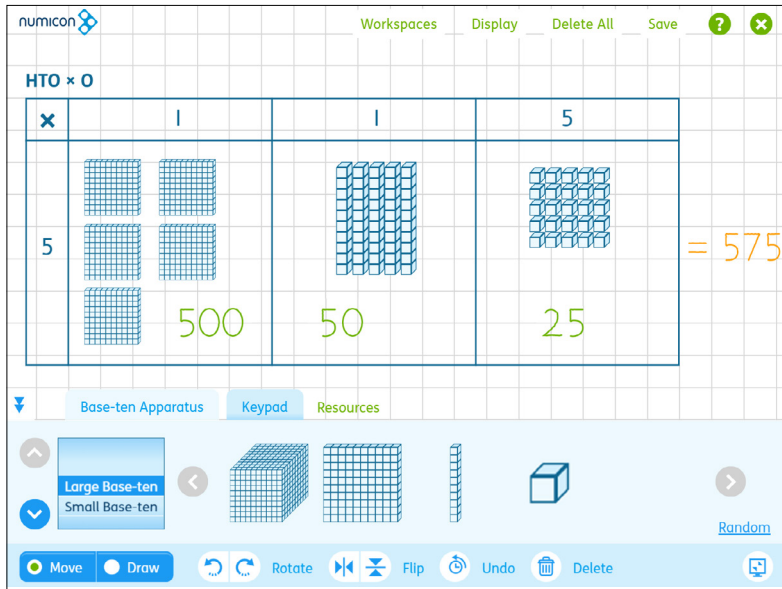
The screenshot shows the Numicon software interface. At the top, there is a navigation bar with the Numicon logo, 'Workspaces', 'Display', 'Delete All', and 'Save' buttons, along with help and close icons. The main workspace features a place value frame with two columns: 'Tens' and 'Ones'. The 'Tens' column contains four yellow '10' counters and the number '40'. The 'Ones' column contains five red '1' counters and the number '5'. To the right of the frame, the equation $40 + 5 = 45$ is displayed. Below the equation, there is a base-ten apparatus consisting of four blue rods (representing 40) and five blue units (representing 5). At the bottom of the interface, there is a toolbar with buttons for 'Move', 'Draw', 'Rotate', 'Flip', 'Undo', and 'Delete'. A 'Resources' tab is also visible, showing 'Base-ten Apparatus', 'Counters', 'Keypad', and 'Place Value Counters'. A 'Add Random Counter' link is also present.

User Guide

Multiplication Grids

Use with the keypad or pen tool and appropriate resources to demonstrate multiplication using the grid method.

- Blank 1×2
- Blank 2×2
- Blank 2×3
- $TO \times O$
- $TO \times TO$
- $HTO \times O$
- $HTO \times TO$
- $O \times O \cdot t$
- $O \times O \cdot t \cdot h$

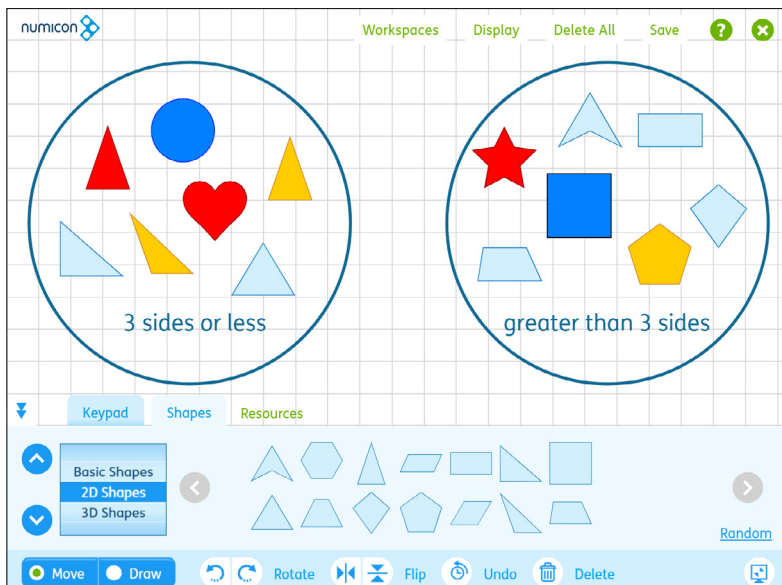


Sorting Rings (Venn Diagrams)

Select from the following sorting rings:

- 1 Ring
- 2 Rings (Separate)
- 2 Rings (Overlapping)
- 3 Rings (Separate)
- 3 Rings (Overlapping)

Pictures, 2D and 3D shapes, Numicon Shapes and other resources can be sorted into the different areas according to criteria.



User Guide

Carroll Diagrams

The Carroll diagram templates can be used to sort, organize, classify and interpret information. Various resources such as 2D and 3D shapes, interlocking cubes, pictures, Numicon Shapes and number rods can be used with this workspace to sort according to the criteria you define.

Part-Whole and Number Trios

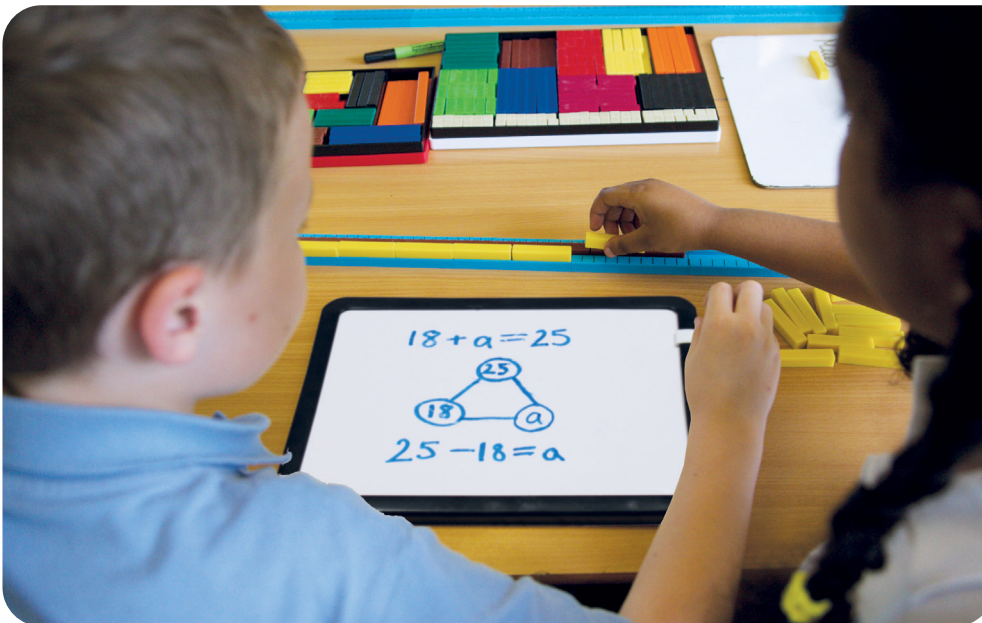
The parts and whole (or part-part-whole/PPW) diagram allows students to visualize the relationship between a number and its component parts. Resources such as the Numicon Shapes, interlocking cubes or counters can be used. Or use the keypad to write numbers or fractions to put in the circles.

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Encourage children to explore connections between numbers using the number trios for addition, subtraction, multiplication and division. Use number trios to explore the idea that subtracting 'undoes' adding and adding 'undoes' subtracting.

The screenshot shows the Numicon Interactive Whiteboard Software interface. At the top, there are menu options: Workspaces, Display, Delete All, Save, a help icon (?), and a close icon (X). The main workspace displays a pyramid of circles representing number trios. The top circle is 20. The second row has 13 and 7. The third row has 10, 3, and 4. The bottom row has 8, 2, and two empty circles. To the left of the pyramid is a card with the number 20. Below the workspace is a keypad with tabs for Keypad, Numeral Cards, and Resources. The keypad includes a range selector (0-100, 0-10, 0-20, 0-30, 0-50), a numeric keypad (0-9), and buttons for Add Random Card, Reset Cards, Face Down, and Face Up. At the bottom, there are tool buttons for Move, Draw, Rotate, Flip, Undo, and Delete.

This workspace is Number Trios (3 Levels). 1- and 2-level workspaces are also available.

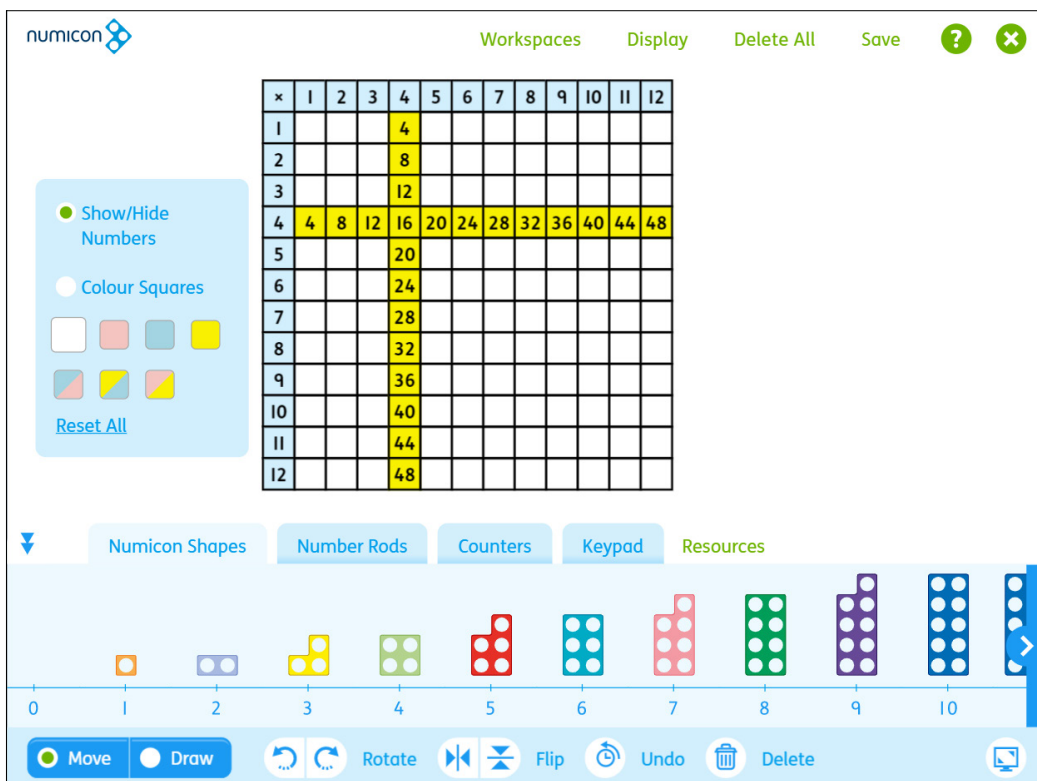
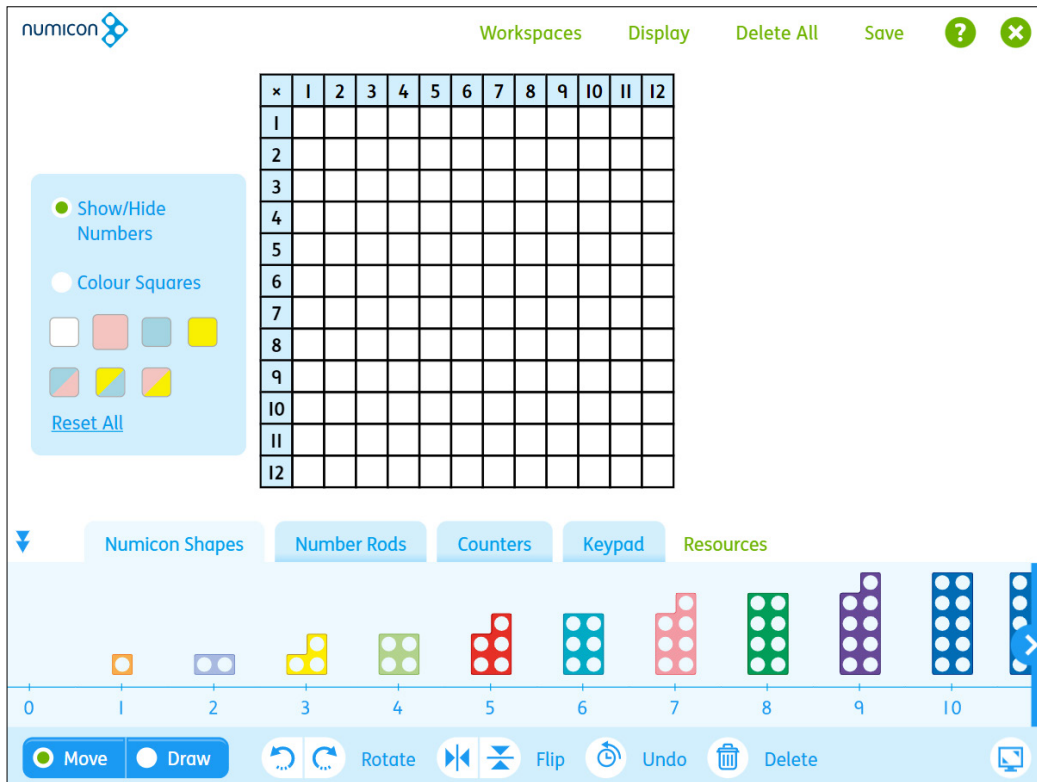


User Guide

Times Table Square

The times table square includes all times tables from 1×1 up to 12×12 in a grid format.

The times table square appears as a blank array with the heading rows visible and the **Show/Hide Numbers** state selected by default. Tap a square to reveal its number. Tap it again to hide it. You can also swipe across whole rows to reveal/hide the numbers, including the row and column header numbers. Selecting **Colour Squares** and choosing a colour will allow you to add colour to the cells in the times table square. **Reset All** returns the times table square to its starting state.



User Guide

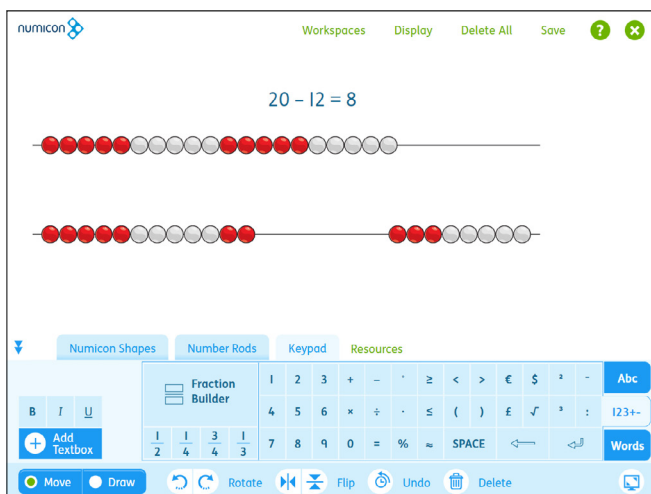
Bead Strings

Bead strings support children as they explore areas such as numerical ordering, addition and subtraction. The bead strings in the *Numicon IWB Software* reflect the physical bead string resource, to help develop number sense.

The bead string workspace options are:

- 5 red, 5 white beads
- 5 red, 5 white beads ($\times 10$)
- 5 red, 5 white, 5 red, 5 white beads ($\times 2$)
- 5 red, 5 white beads ($\times 2$)
- 5 red, 5 white, 5 red, 5 white beads
- 10 red, 10 white beads

Tap a bead to move it to the other end of the string.



Two bead strings can be used for activities such as finding the difference between two numbers.

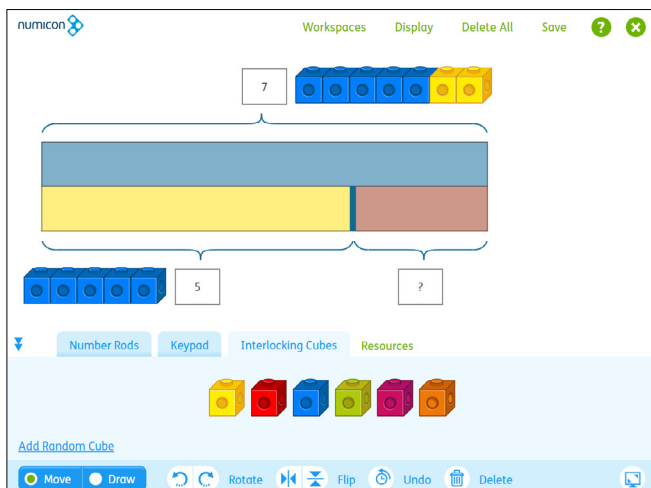
Select the workspace 5 red, 5 white, 5 red, 5 white beads ($\times 2$).

Bar Model

The bar model is useful for representing word problems or demonstrating the relationship between a whole and its parts.

Simply drag the blue bar on the bottom row to adjust the size of the yellow and brown 'parts'.

The brackets will automatically adjust to match the size of each part. Tap a text field and use either your keyboard or the keypad to insert numbers into the whole and parts fields.



In this example, the bar model has been used to model $5 + 2 = 7$, which is also shown with the interlocking cubes.

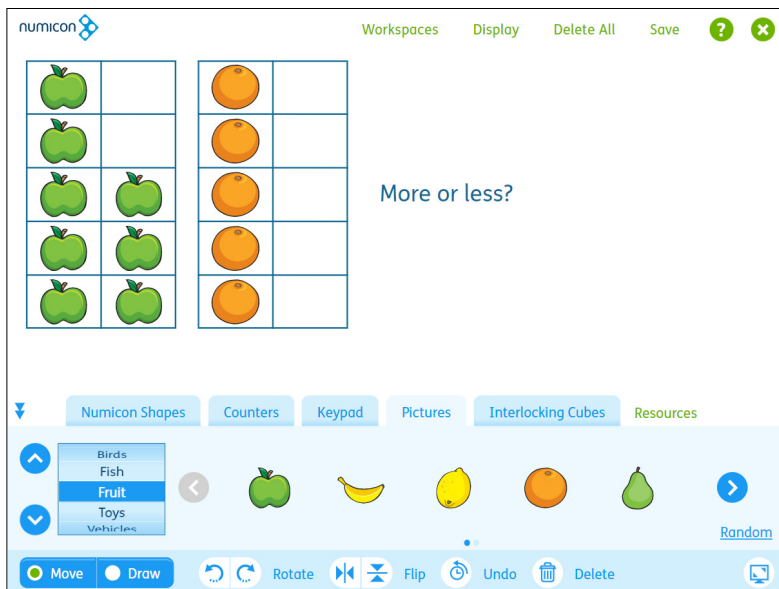
User Guide

10-Frames

There are four workspace options for the 10-frames:

- 10-frame
- 10-frame × 2
- 10-frame × 3
- 10-frame × 4

The frames are presented in a vertical format and can be used with many of the resources, such as the interlocking cubes, counters, pegs, money, cubes, pictures and shapes.



Graph Axes

There are two different graph axes provided: 1-quadrant and 4-quadrant options. Both graphs are sized to align to the background grid (select **Display** and then the third of the six grid options). This background grid is also sized to match the number rods.

Use the keypad or **Draw** tools to add labels, values and headings.

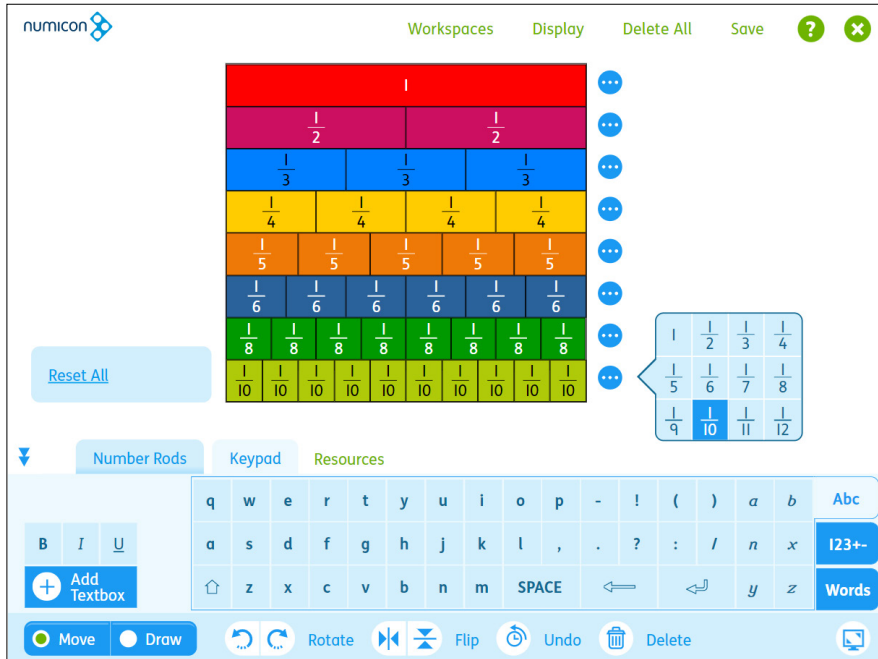


User Guide

Fraction Wall

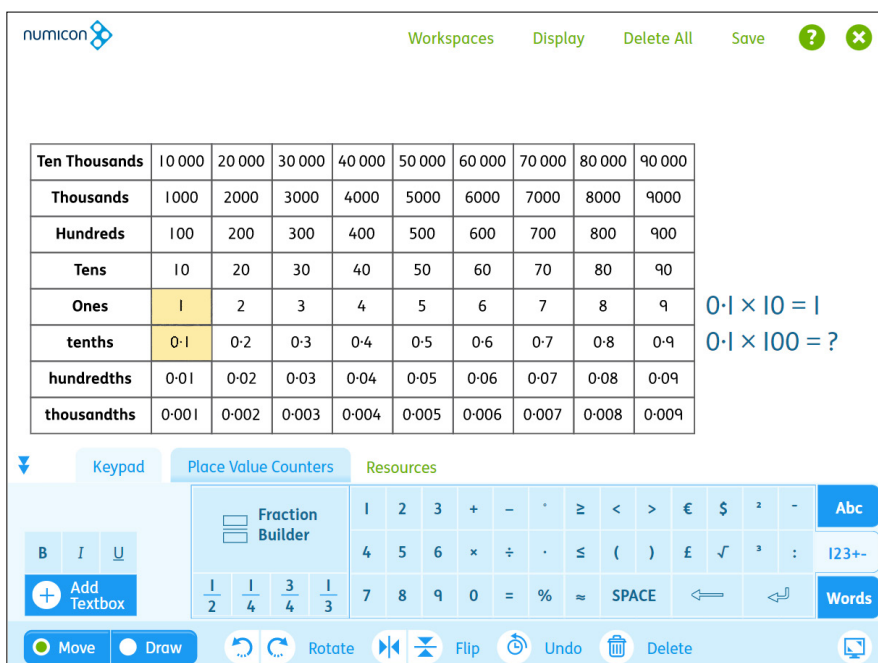
The fraction wall offers a visual way to explore and compare fractions. Each row in the fraction wall can be adjusted so you can choose which fractions you would like to feature and compare, from one whole through to twelfths.

By default, all the fraction labels are hidden. Tapping on a fractional 'part' will reveal its label. Tap again to hide. To customise the order of the fractions, click the circle with the three dots to the right of the chosen row, and then select from the fraction options available. **Reset All** returns the fraction wall to its starting state.



Gattegno Board

The Gattegno board is a static workspace that can be used to display and discuss concepts such as place value and the inverse relationship between multiplication and division. It includes values from ten thousands through to thousandths. It can be used with the draw tools, resources such as the place value counters, and with the keypad.



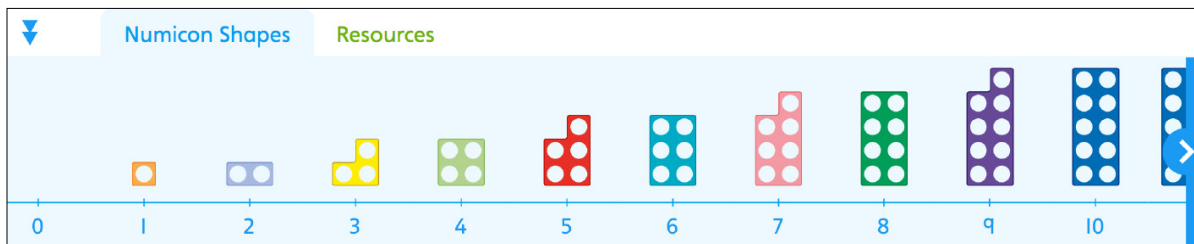
Here, the Gattegno board has been used with the keypad to create a question. The highlighter tool has then been used to emphasise the relevant values.

Resources

Random is available with several of the resources. Tapping **Random** will add a random selection of items from your selected set to the workspace. For example, if you tap **Random** whilst in Money>Pounds, a random selection of pound coins and notes will be added to the workspace.

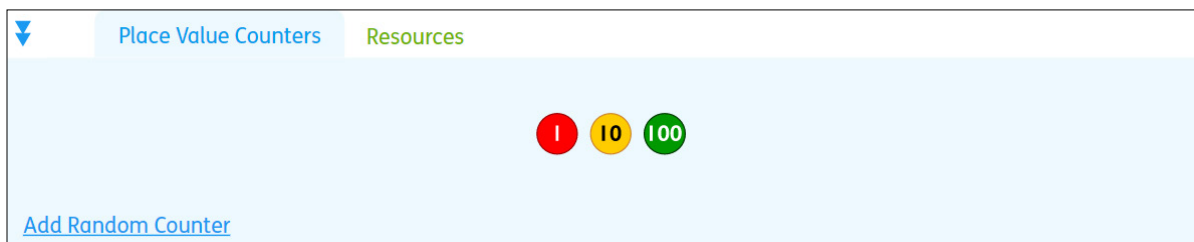
Numicon Shapes

The Numicon 0–21 Shapes are available in a number line format. Simply drag or tap a Numicon Shape to add it to the workspace.



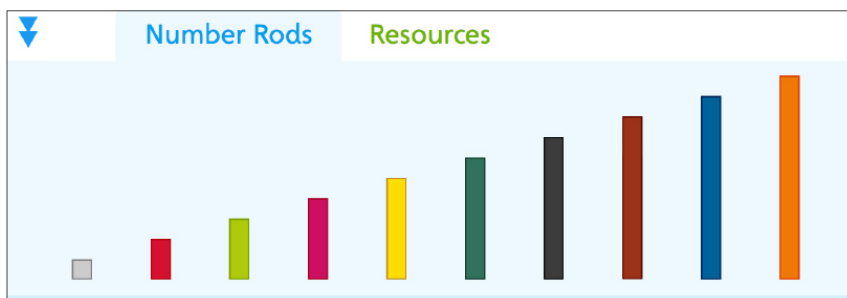
Place Value Counters

The place value counters are labelled with the values 1 (red), 10 (yellow) or 100 (green). Use with a variety of workspaces, such as the place value frames or part-part-whole diagram to model concepts around place value. Tap **Add Random Counter** to add a random counter to the workspace.



Number Rods

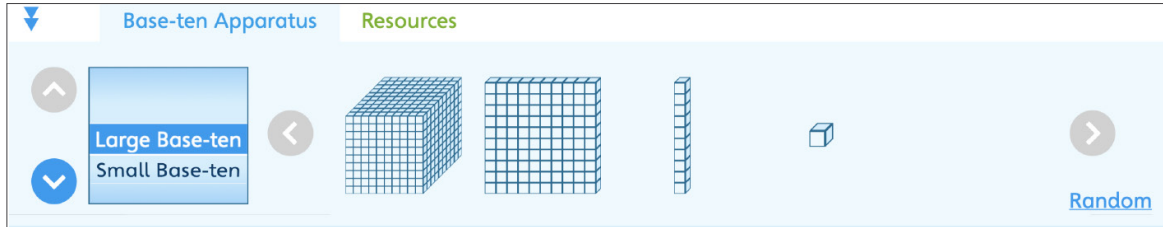
Use with a variety of workspaces instead of or with the Numicon Shapes. Simply drag or tap a number rod to add it to the workspace.



User Guide

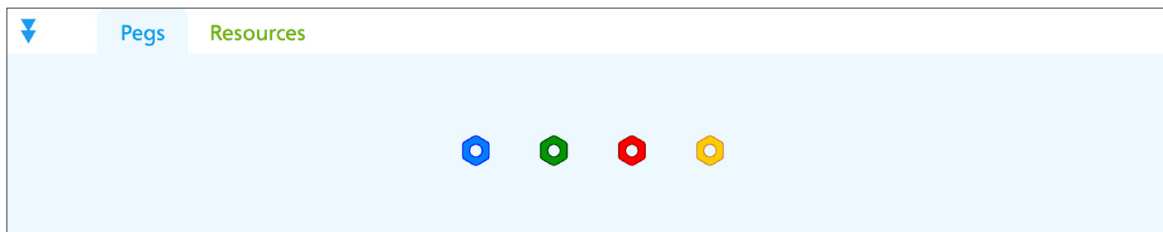
Base-ten Apparatus

Tap or drag 1000-cubes, 100-flats, 10-sticks or 1-cubes onto the workspace. Smaller versions of the 1000-cube, 100-flat, and 10-stick are also available in the resources panel. These have been reduced in size so they are suitable for use in the place value frames and multiplication grids.



Pegs

Use with a wide variety of workspaces for pattern and counting activities. Tap or drag a peg to add it to the workspace. The pegs fit perfectly on the baseboard and over the holes on Numicon Shapes.



Counters

Available in yellow, red, green and blue, the counters can be used in various ways, such as for building arrays when multiplying and dividing, for arranging into Numicon Shape patterns in counting activities, or to cover the holes on Numicon Shapes or numbers on the 100 Square. Tap or drag a counter to add it to the workspace.



Number Rod Trays

There is a number rod tray for each number up to 10. They are useful for building up patterns and for number fact work with the number rods. To move the rod trays, click on the 'handle' on the outer border of the tray.



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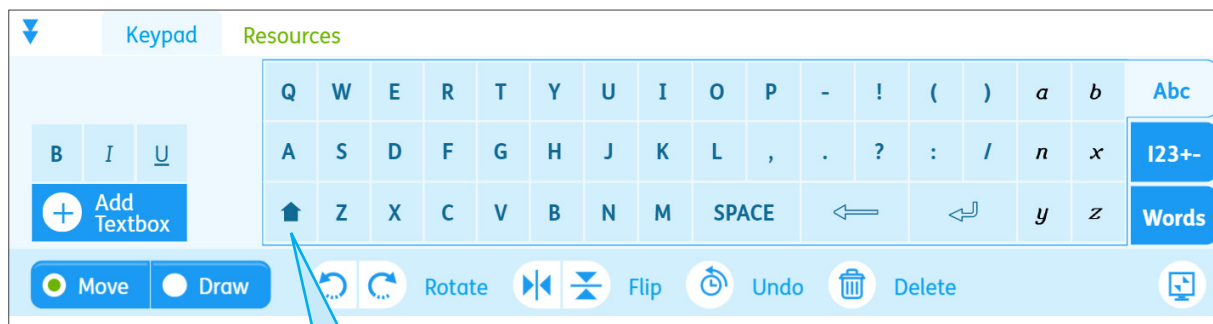
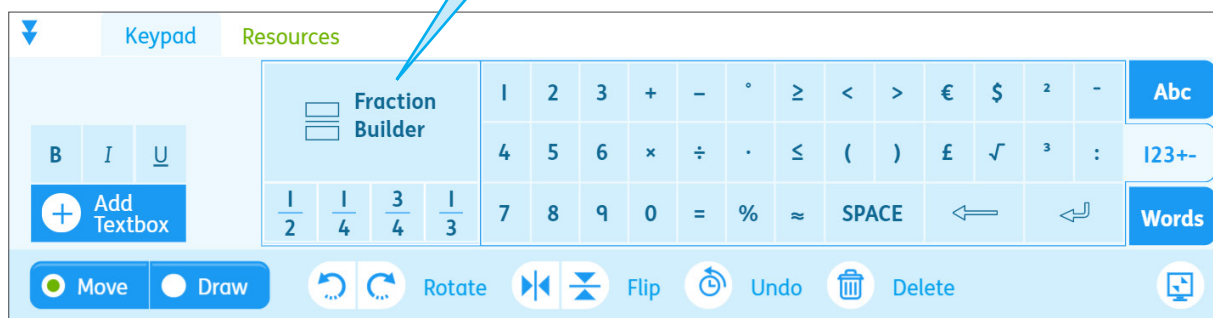
Keypad

The keypad includes the following features:

- A to Z keyboard
- Numerical keypad
- Mathematical symbols
- Commonly used 'shortcut' mathematical words
- Commonly used 'shortcut' fractions
- Fraction creator (add your own numerator and denominator)
- Formatting options (bold, italic, underline and capitals).

To add text or numbers to a workspace, start typing from your keyboard, or click **Add Textbox** to add a textbox to the workspace. You can then use the keypad or your keyboard to add text, numerals, symbols etc into the textbox. You may then choose to edit the text or select it and reposition it in the workspace. You can double-tap on a textbox at any time to reopen it and alter the content.

To create your own fraction, tap **Add Textbox** and then tap **Fraction Builder**. Insert your numerator and denominator and then tap **Use**. Your fraction will be added to the textbox. **Cancel** will exit without adding anything to the workspace. For mixed fractions, first enter the whole number in the textbox, then insert the fraction. To create a fraction in the Calculation Boxes workspace, tap a calculation box so it is active, enter your fraction using **Fraction Builder** and tap **Use**.

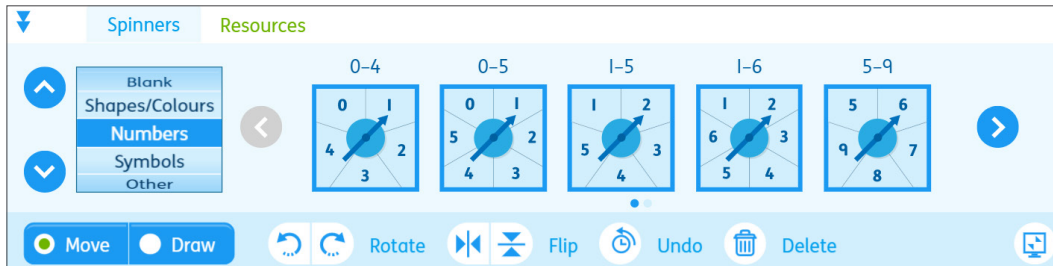


Click on the arrow to change the letters from lowercase to capitals.

User Guide

Spinners

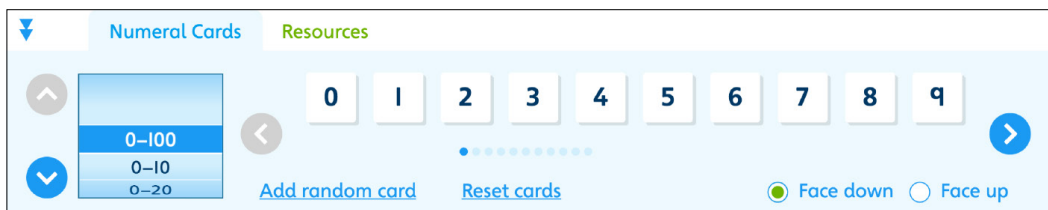
Spinners can be used to randomly select from sets including numbers, Numicon Shapes, money, calculation symbols and fractions. There are blank spinners with 2, 3, 4, 5 or 6 segments, which can be adapted using the annotation tools, keypad or other resources. Tap the blue circle at the centre of the spinner to make the arrow spin.



Numeral Cards

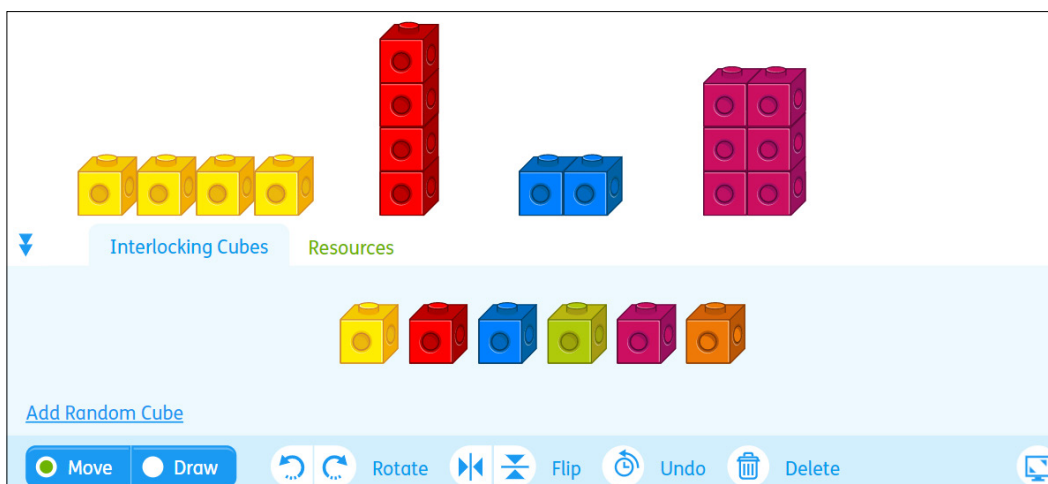
There are 12 different pre-defined sets of Numeral Cards to choose from. The 0–100 card set is selected by default. Cards can be added to the workspace face up or face down. When Numeral Cards are flipped, they will turn face up or face down. Tap or drag a card to add it to the workspace, or tap on **Add Random Card** to add a random card from the set. **Reset Cards** will clear all the cards from the workspace and return them to their starting position in the resources panel. Each numeral card can only be added to a workspace once.

- 0–100
- 0–10
- 0–20
- 0–30
- 0–50
- 1–5
- 1–12
- 11–20
- Multiples of 10
- 2-digits
- Odd
- Even



Interlocking Cubes

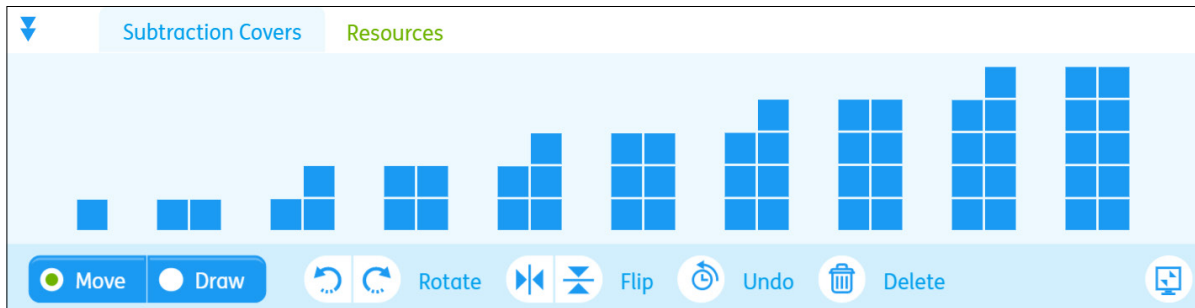
Designed to reflect the physical cubes, interlocking cubes can be used for a wide range of maths activities such as to count, sort, add, subtract, or to model and discuss concepts such as area. The cubes are in six different colours with a 3D feel and can be stacked from bottom to top to create a tower.



User Guide

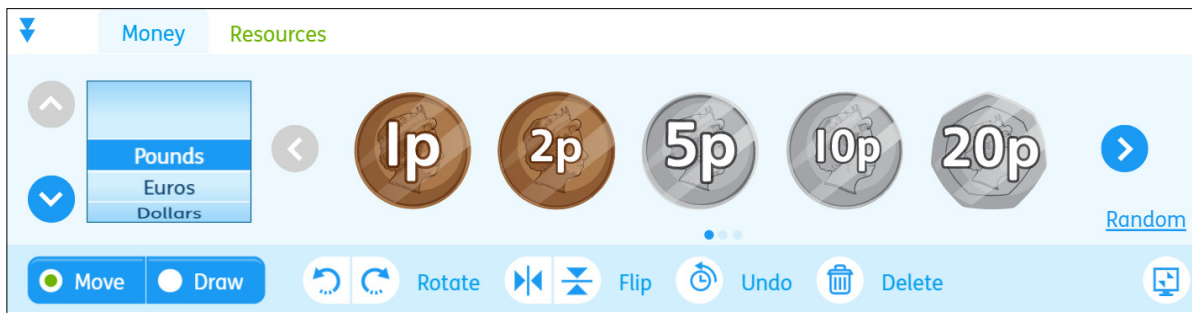
Subtraction Covers

Subtraction Covers are used to model subtraction by covering parts of Numicon Shapes. Select the cover you need from the resources panel and drag or tap it to add it to the workspace. Covers can be rotated and flipped in the same way as the Numicon Shapes and other resources.



Money

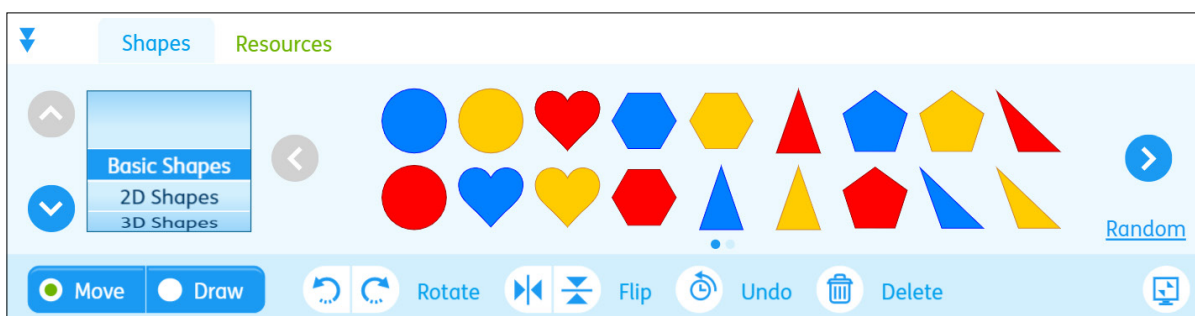
Pounds sterling, euros and dollars can be added to a variety of workspaces for use with activities involving money, such as partitioning, comparing and ordering, and rounding.



Shapes

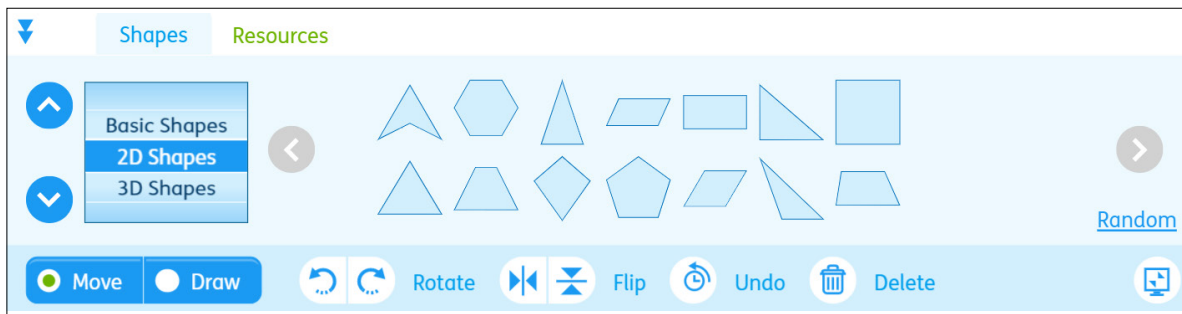
There are three shape sets to choose from. Tap or drag a shape to add it to the workspace.

- **Basic Shapes** are a mix of simple shapes such as heart, hexagon, circle, square that can be used for sorting activities or for pattern and counting/estimating.

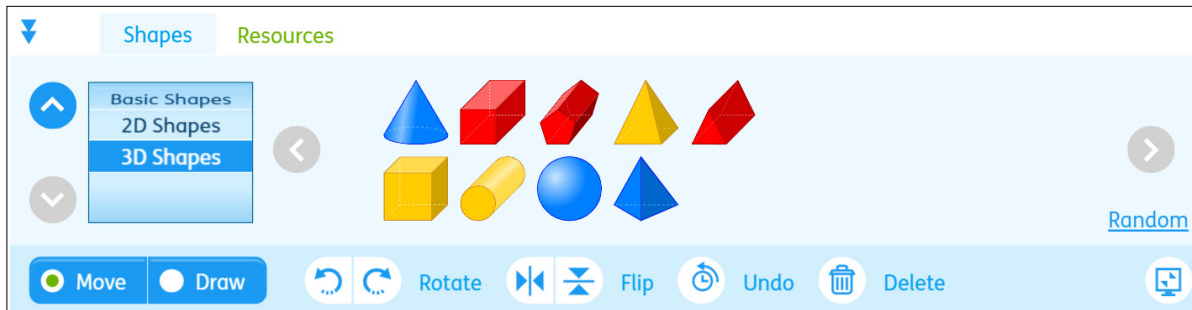


User Guide

- **2D Shapes** includes various quadrilaterals and triangles. They can be used for sorting, tessellating, counting/estimating, as well as for discussion about the properties of the shapes.



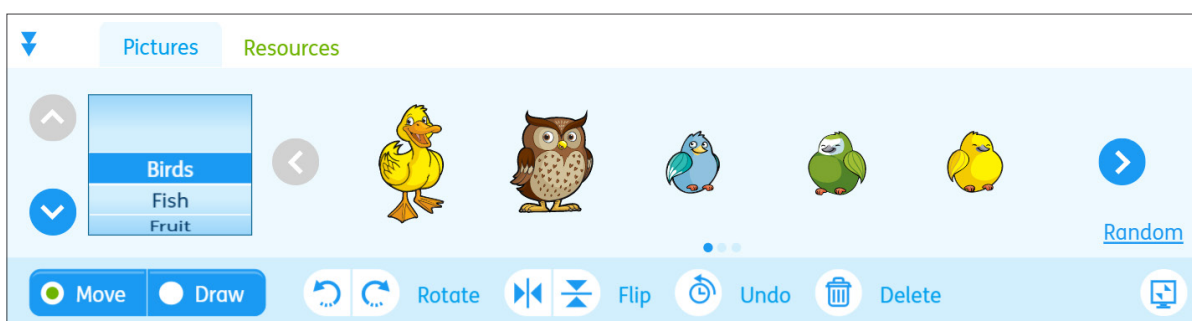
- **3D Shapes** can be used for discussion about the properties of 3D shapes, or for sorting/classifying activities.



Pictures

Use with a wide variety of workspaces for pattern, counting, estimating and sorting activities. Select from the following picture categories:

- Birds
- Fish
- Fruit
- Toys
- Vehicles



User Guide

Numicon Shapes (Grey)

The Numicon 0–21 Shapes (Grey) are available in a number line format. Simply drag or tap a Grey Shape to add it to the workspace. The Grey Shapes allow children to work with Numicon Shapes without the aid (or potential distraction) of the colours. Grey Shapes can be employed as a possible representation of negative numbers in combination with the coloured Numicon Shapes.

The screenshot shows the Numicon software interface. At the top, there is a menu with options: 'Workspaces', 'Display', 'Delete All', and 'Save'. Below the menu is a number line ranging from -7 to 5. Grey Numicon shapes are placed on the number line to represent negative numbers: 1 dot at -1, 2 dots at -2, 3 dots at -3, 4 dots at -4, 5 dots at -5, 6 dots at -6, and 7 dots at -7. The interface also includes a bottom toolbar with options: 'Move', 'Draw', 'Rotate', 'Flip', 'Undo', and 'Delete'.

Arrays

Insert an array from 1×1 up to 10×10 . Use the up and down arrows next to the **Rows** and **Columns** fields to enter the number of dots you would like to appear in each row and column. Then tap **Add Array**.

The screenshot shows the Numicon software interface. At the top, there is a menu with options: 'Arrays' and 'Resources'. Below the menu is an array of 12 blue dots arranged in 3 rows and 4 columns. The interface also includes a bottom toolbar with options: 'Move', 'Draw', 'Rotate', 'Flip', 'Undo', and 'Delete'.

**For help, please see the User Guide or contact
the support team on:**

Email: owlsupport@oup.com

Phone: +44 (0) 1536 452960

For browser and system requirements, please go to:

<https://www.oxfordowl.co.uk/pages/q-which-browsers-work-with-oxford-owl>