Teaching Guidance & Activity Ideas
Ten in the Bed
YD1225

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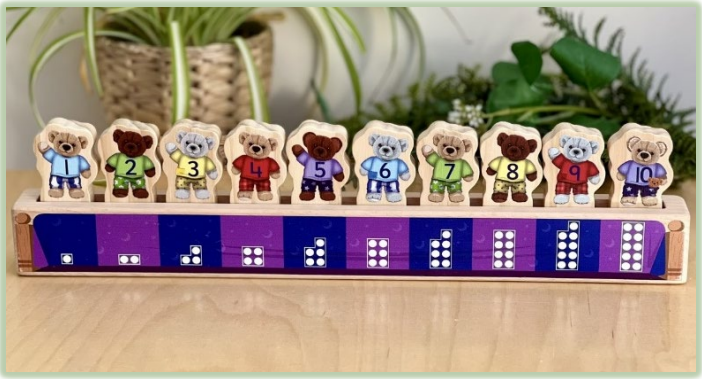
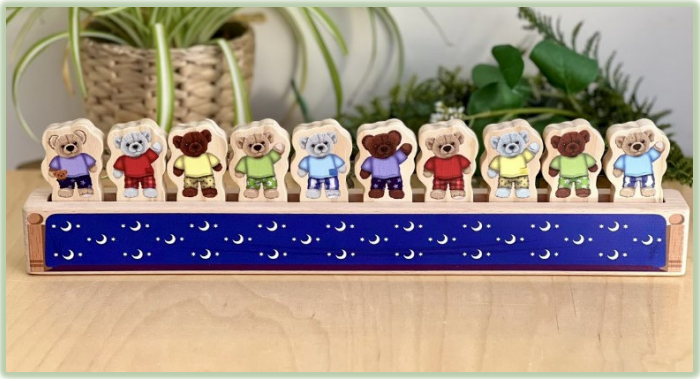
Number and pattern with Ten in the Bed

The numbers to ten are the building blocks of the number system. Mastering counting, subitising, numerals, composition and ordering of numbers to ten provides young children with a strong foundation for future learning in mathematics. It is worth investing time in exploring and playing with numbers to ten, and the Ten in the Bed resource provides a wealth of opportunities for this. This seemingly simple resource has been cleverly designed to maximise mathematical learning. Inspired by the popular number song *Ten in the Bed*, it can be used over and over again, providing a familiar context to develop not only a deep understanding of numbers to ten but also essential pattern learning. Children who are able to spot patterns notice mathematical structures and relationships, which is at the heart of being mathematical.

The ten teddies and the bed are double-sided. The teddies have numbers on one side so that children can learn the meaning of the numerals and the order of the numbers. The other side is unnumbered so that children can count and subitise '**how many**' teddies there are, being able to use them in any order and move them into groups without the distraction of numerals. It is important that children learn both the order of the numbers (ordinality or sequence) and the meaning of the numbers (cardinality or 'how many-ness'), as these form the essentials of number sense and provide a secure foundation for future mathematics learning.

Mathematical vocabulary to use with children is shown in **bold**.

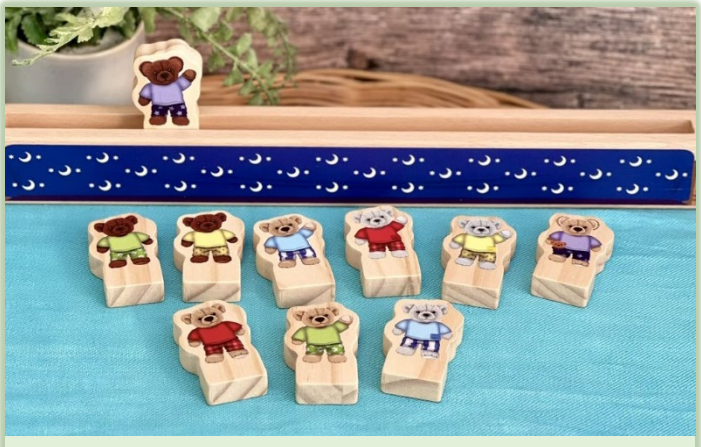




Finding 'How many' using the unnumbered side

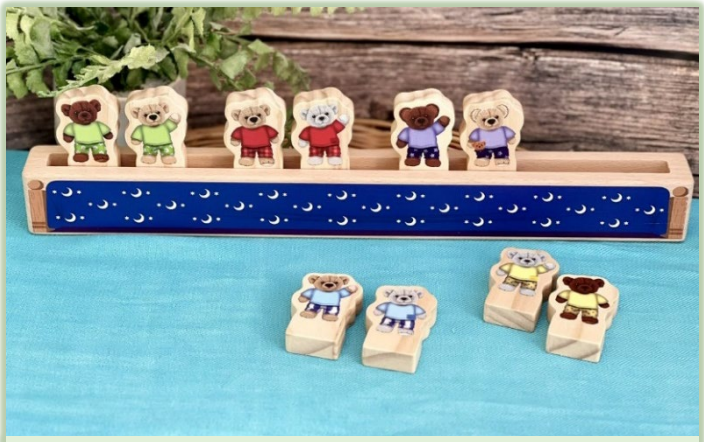
Learning to count

Children can count the teddies as they place them in the bed or check **how many** are already in the bed. Being able to place them anywhere in the bed emphasises to the children that objects may be counted in any order – they don't have to place them left to right. Asking children to count a specific number of teddies from the ten in the bed helps them to focus on the number required, as they have to remember to stop counting when they get to the number they need. Counting out **nine** from the **ten** teddies is particularly helpful as children really concentrate to ensure they stop at **nine**.

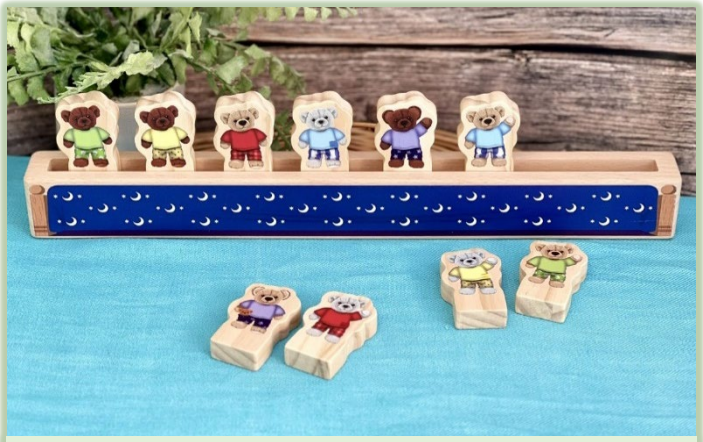


'Get nine teddies.'

To extend counting, children can be encouraged to find how many teddies there are by counting in twos. There are two of each teddy wearing the same colour pyjamas to encourage pairing them up to count in twos. Children might also count teddy features such as the number of eyes, legs, ears or feet. This offers the opportunity to practise counting to twenty and to count in twos, as each teddy they place is a unit of two for these features.



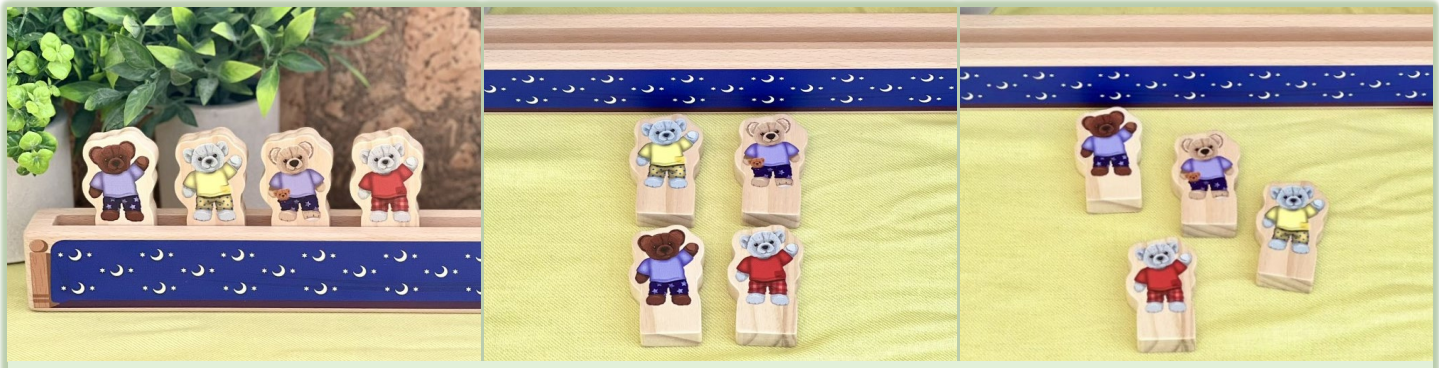
'2 ,4, 6, 8, 10 bears'



'2, 4, 6, 8, 10, 12 feet in the bed'

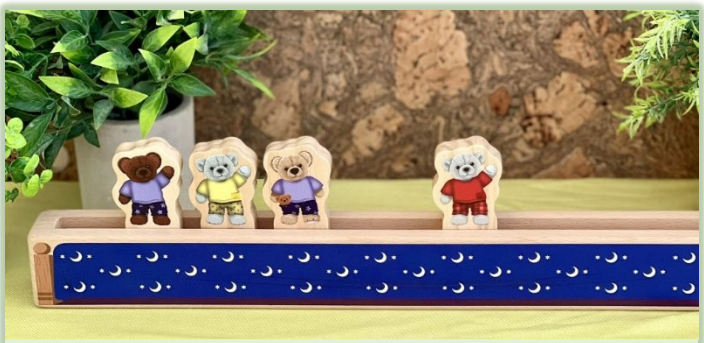
Practising subitising

Subitising (instantly recognising 'how many' without needing to count) is important for early number learning. Children can practise subitising the number of teddies, recognising 'how many' when they are lined up in bed but also in different arrangements out of the bed.

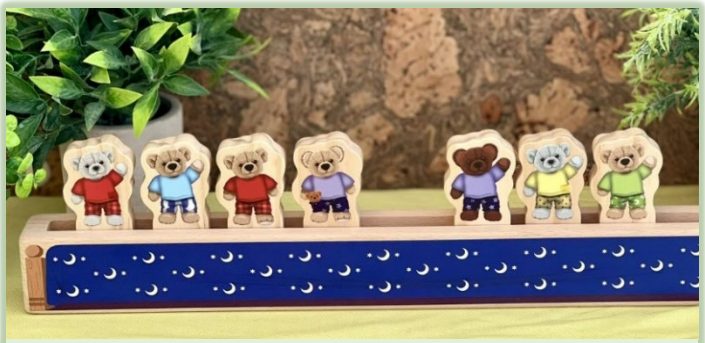


Different representations of 4

Depending on how the teddies are arranged, children will subitise them in different ways. If there are a small number all together in a group then they might just instantly know how many there are. If there are more teddies or if they see the teddies as grouped in some way, then they will probably subitise (instantly recognise) smaller numbers within the whole and put these together to know the total, using their knowledge of number combinations.

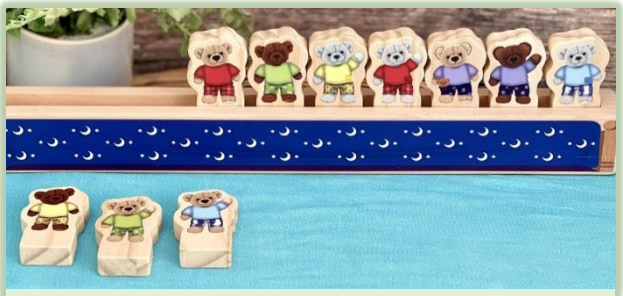


'Four! I saw it as three and one!'



'Seven! I saw it as four and three!'

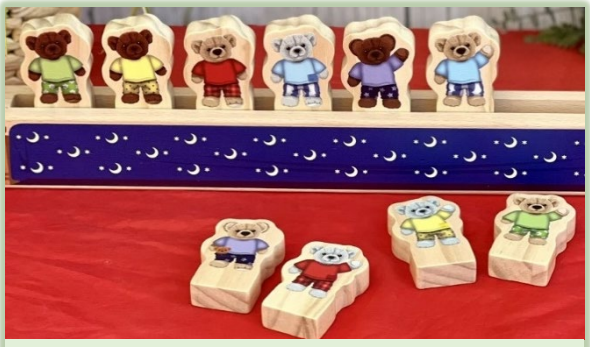
Developing understanding of subtraction



'...So they all rolled over and three fell out!'

Ten in the Bed is a subtraction song where we take away one each time. This provides lots of opportunities for counting and subitising how many are left in the bed as well as prediction of what will happen when the next one falls out. Whilst taking one away each time (as in the original song) is useful for seeing the pattern of one less, once this is secure it can be extended to more than one falling out each time. It could be two fall out or two less each time (another number pattern) or the number could be varied, encouraging the children to subitise and take out zero, one, two or three all at once.

The Ten in the Bed resource gives children physical experience of subtraction, helping them to conceptualise it as removing or taking away. It also provides important experience of zero when there are no teddies left in the bed.

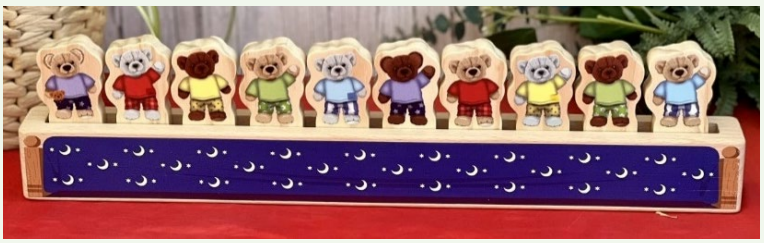
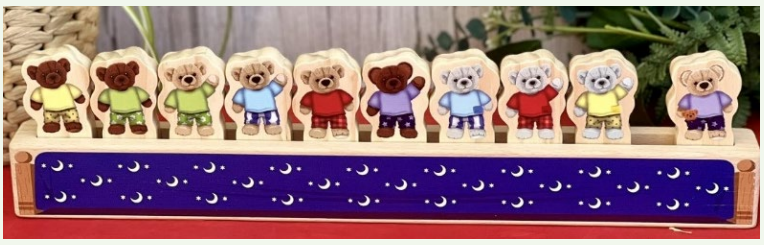
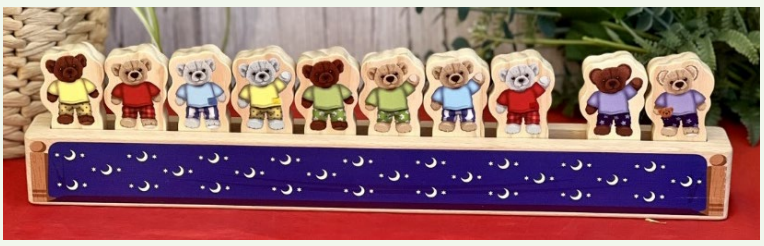


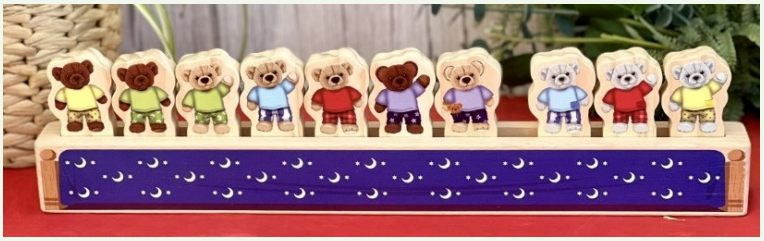
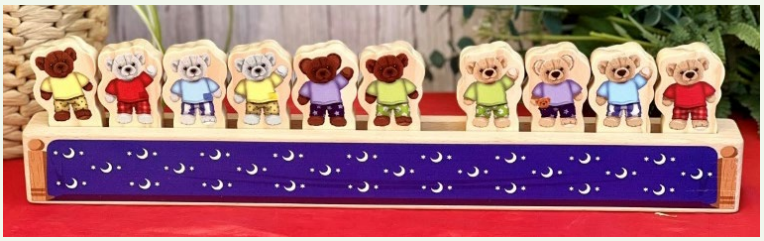
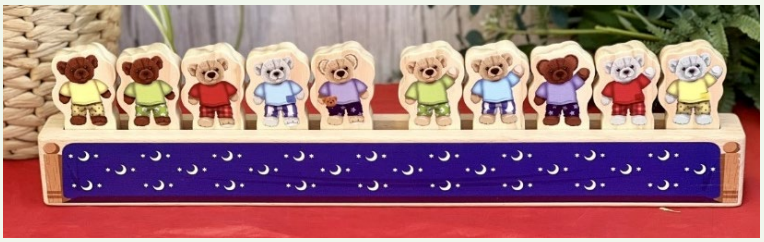
'Six and four makes ten! Ten take away four is six! Ten take away six is four!'

Learning the composition of numbers to 10

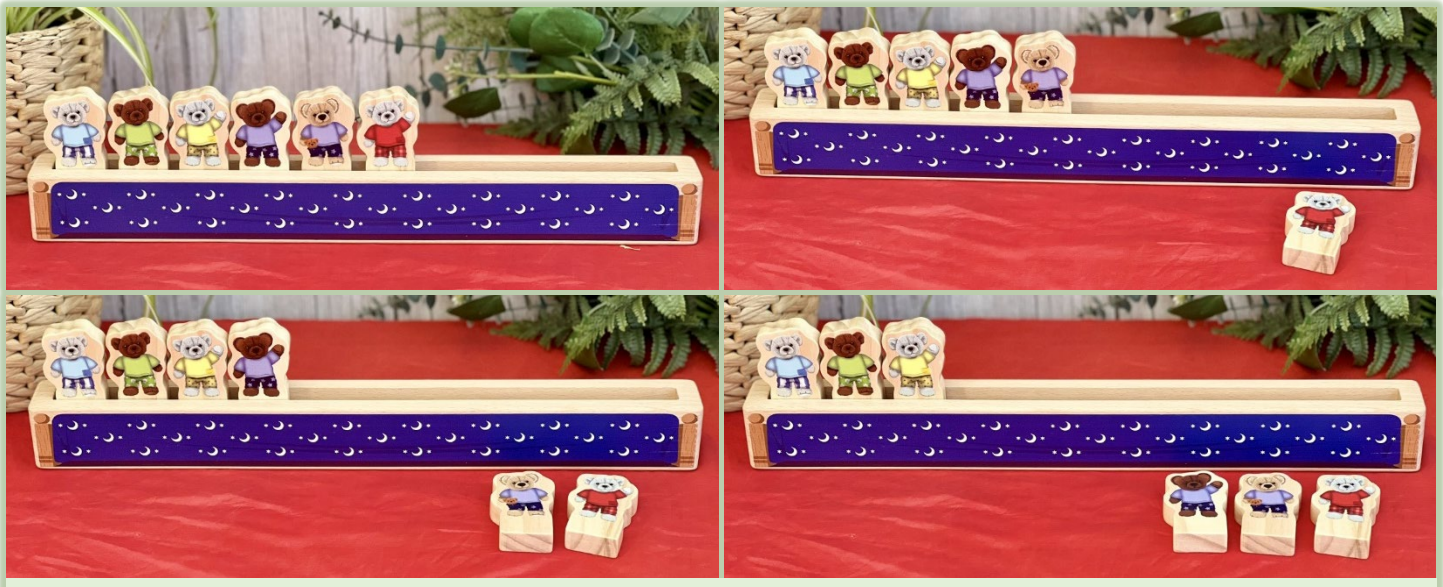
The teddies can be grouped to support important learning about number composition. Learning number bonds to ten (the pairs of numbers that ten is made up of and can be partitioned into) is supported by counting or subitising the number of teddies that are in the bed and the number that have fallen out: 10 and 0, 9 and 1, 8 and 2, 7 and 3, 6 and 4, 5 and 5. Doing this whilst singing the song shows children the pattern of one less in the bed means one more on the floor, with ten always the total number of teddies.

Any of the teddies could be used for this but there are also differences between the teddies which show the number bonds to ten. If the children group the teddies by these features then they will find all of the number bonds to ten.

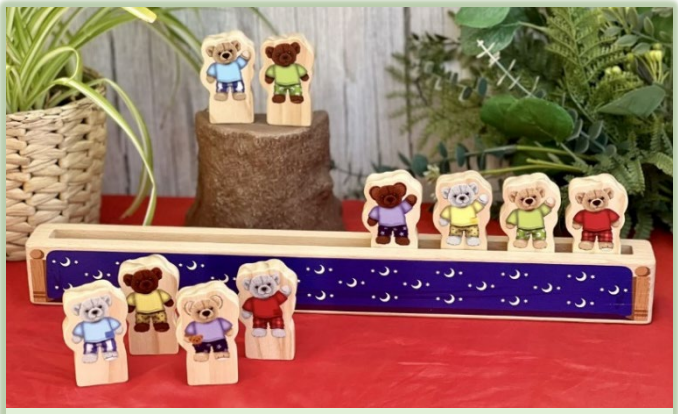
Bears	10	Other animals	0	10 and 0	
No other toys	9	Own toy teddy	1	9 and 1	
Folded ears	8	Not folded ears	2	8 and 2	

No pocket in pyjama top	7	Pocket in pyjama top	3	7 and 3	
Small nose	6	Big nose	4	6 and 4	
Waving	5	Not waving	5	5 and 5	

Children can also learn the composition of other numbers by playing with grouping any of the teddies in the bed.



Making six – 6 and 0, 5 and 1, 4 and 2, 3 and 3



'How many ways are there to put ten into three groups?'

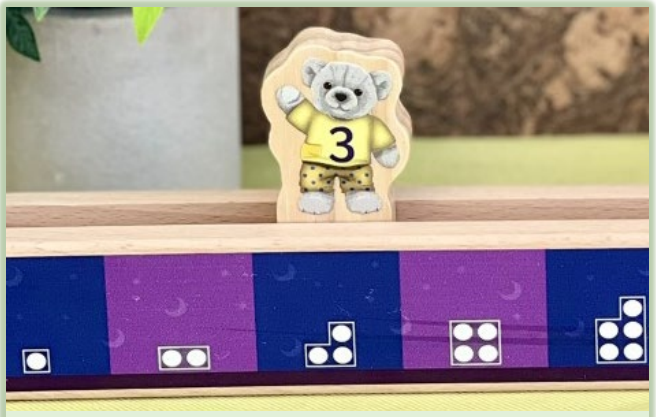
They can even put the teddies into more than two groups with the introduction of other places that the teddies could be such as on a log or chair, or in the bath.

Arranging the teddies in different ways helps children to see the numbers that other numbers are made up of, deepening their understanding of these numbers, and laying the foundations for later addition and subtraction understanding. Children can play with the teddies, telling stories about them, and making number scenarios about how many there are and how this changes when some are moved. Adults can support children to explore a range of combinations, join in with their creative play and point out where number changes are occurring, as well as pointing out more, less and same when comparing the different groups of teddies.

Learning numerals and number order using the numbered side

Developing understanding of numerals

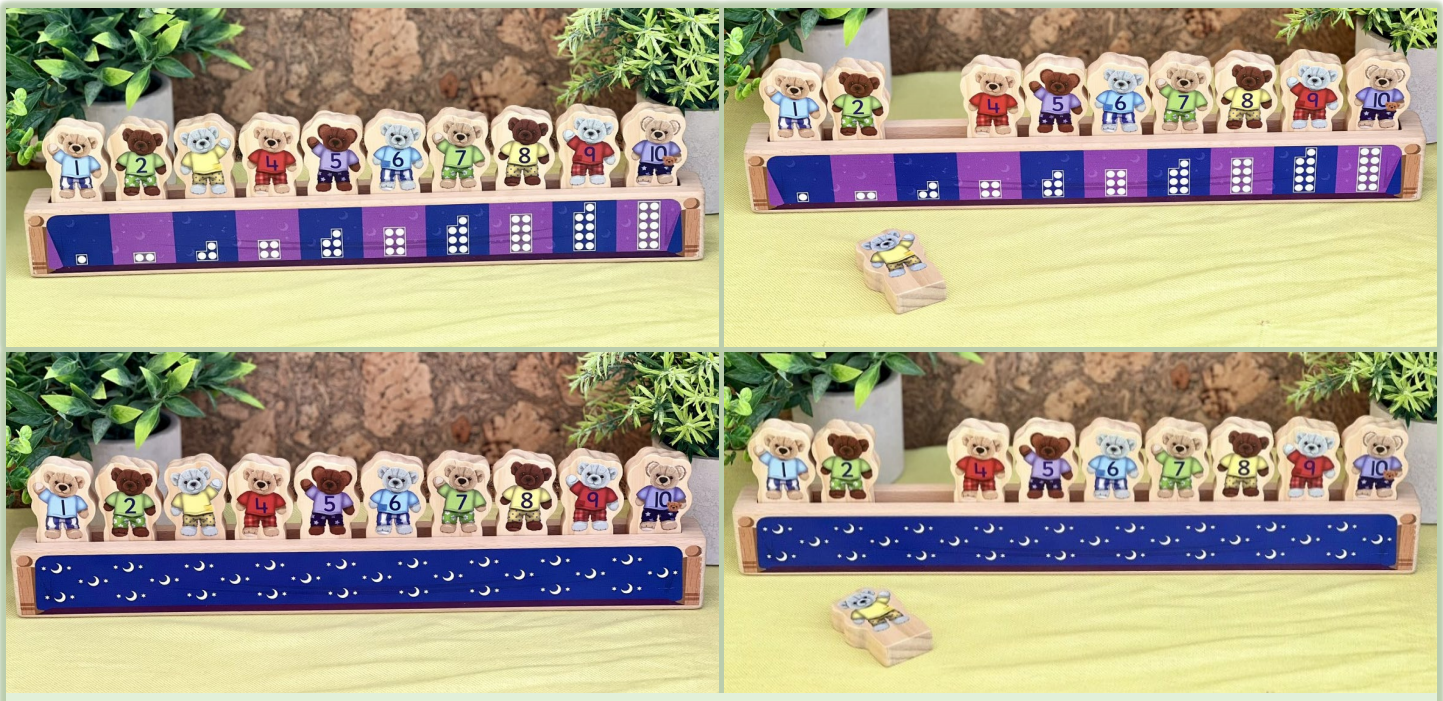
It is important that children learn the meaning of the numerals (how many each numeral represents), not just to name each numeral. The teddies have numerals and the bed has spaces numbered with dot arrays, so children can match the numeral to the number of dots, learning the meaning of the numerals (how many).



'Where does number 3 go? Count the dots to check.'

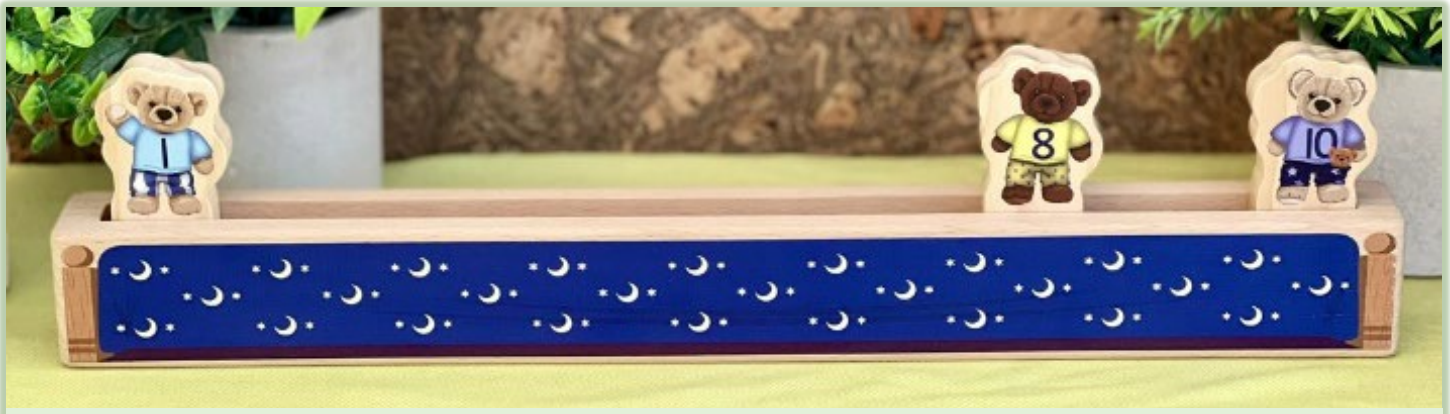
Learning the order of the numbers

The numbered teddies help teach children about the number sequence to ten, supporting them to work with number lines when they are older. Children enjoy playing missing number games and get a sense of satisfaction from putting mixed-up numbers in the correct order. They can use the numbered side of the bed with the dot arrays to help them with ordering the numbers to ten, or they can use the unnumbered side of the bed if they already know the numerals.



'Put the numbers in order. Which number is missing?'

Placing the teddies in different positions in the unnumbered side of the bed provides opportunities to learn about the relative position of the numbers one to ten. Children can talk about seven as 'next to six', 'between six and eight' and 'nearer to ten than one', for example. The long slot for the teddies to fit in, means that children can easily move a teddy along the bed, deciding where they think each number will go. This encourages estimation of where numbers are located along a number line, visualising where the other numbers would be. Children can learn to place five in the middle and nine near to the end, for example, getting a feel for the relative size of these numbers.



'Eight is nearer to ten than one.'

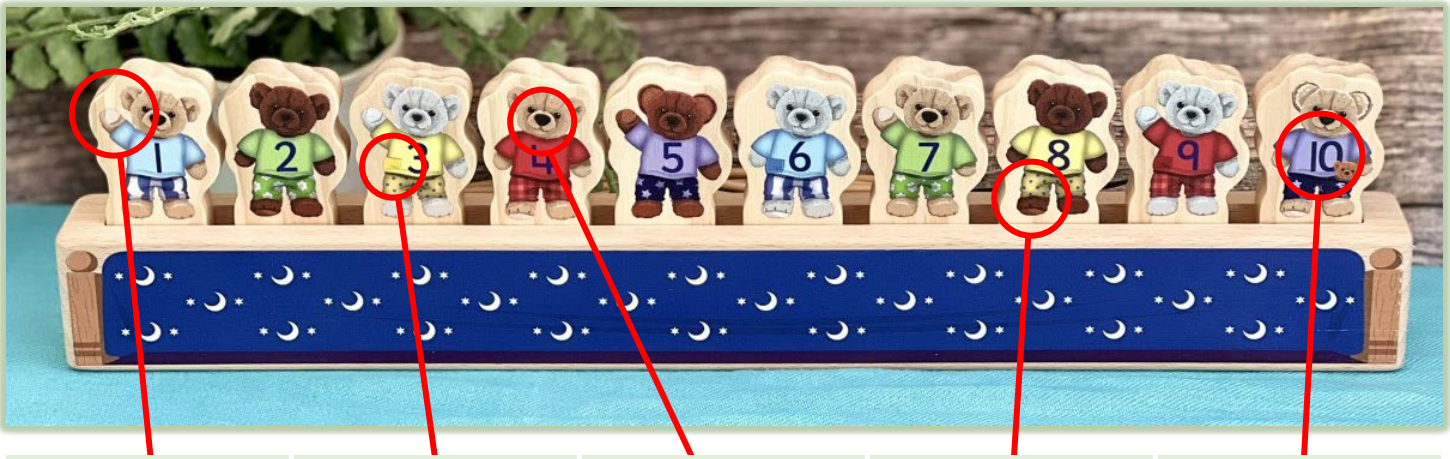
The dot arrays on the bed show the pattern of the number system, showing the pattern of odd (extra dot in the sticky out bit) and even numbers (all paired dots).

Learning to notice and understand patterns

The teddies each have different features which form **repeating patterns** when arranged in the correct order. Children enjoy looking for similarities and differences and the Ten in the Bed resource helps to build upon this, supporting them to notice a range of patterns subtly hidden in the teddies.

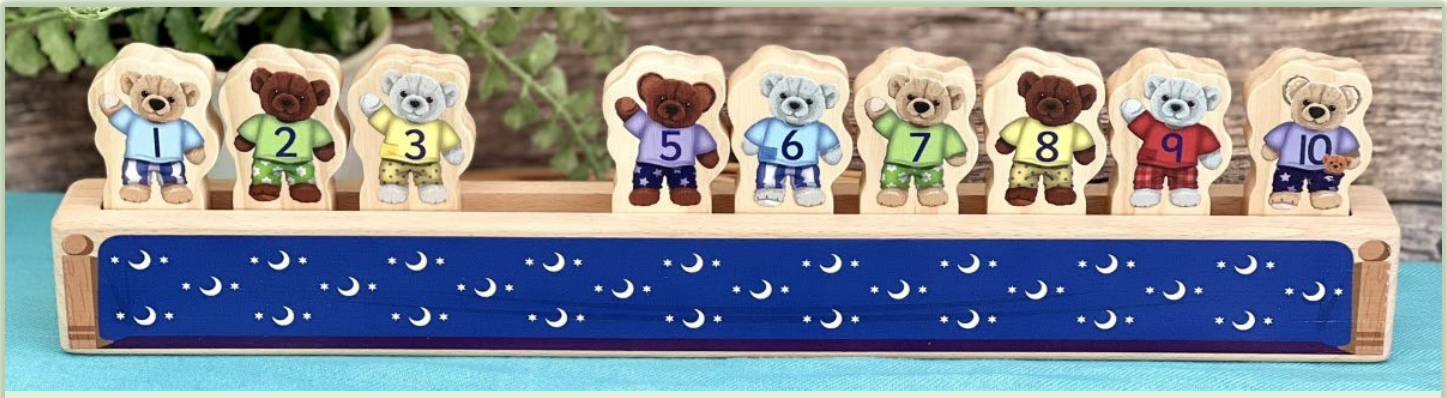
The repeating pattern that children typically learn first is the AB pattern (two things that repeat over and over). In number order, the teddies are 'waving, not waving, waving, not waving...' which is an AB pattern. The teddies are also 'feet down, foot up, feet down, foot up...' which is an AB pattern. Children need to go beyond two-item AB patterns to get a good feel for **repeating patterns** and how they work. There are a number of different pattern structures in the teddies. These are:

Waving, not waving, ...	AB pattern
Beige fur, brown fur, grey fur, ...	ABC pattern
No pocket, no pocket, pocket, ...	ABB pattern
Big nose, small nose, small nose, ...	AAB pattern
Blue, green, yellow, red, purple, ...	ABCDE pattern



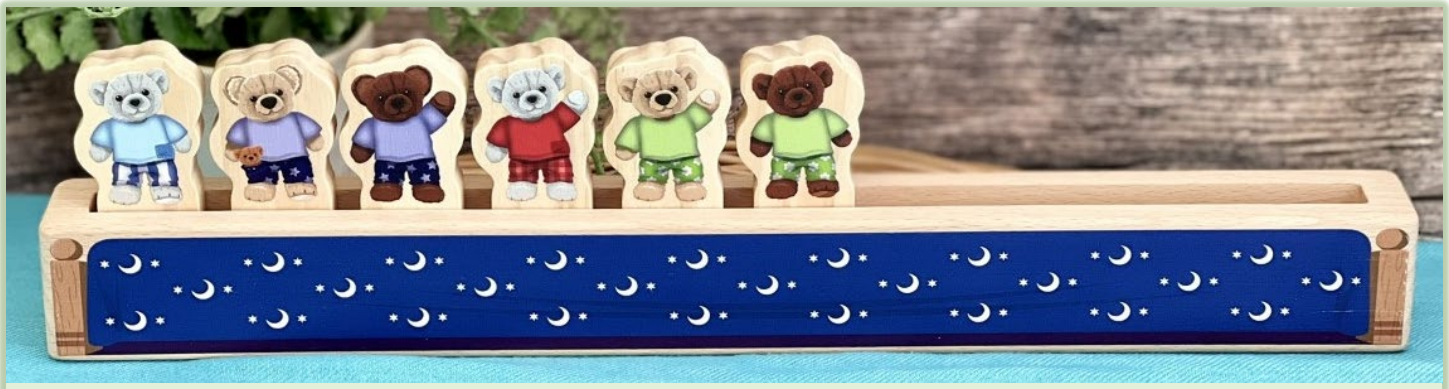
Waving	Pocket	Big nose	Foot up	Pyjama colour

Children can explore the patterns in a number of ways, strengthening their understanding of the underlying pattern structures. Removing and hiding a teddy prompts children to work out what features the missing teddy must have, according to the pattern that they have noticed. For example, if children have noticed a 'waving, not waving' (AB) pattern, they can work out that the missing teddy is not waving. If children have noticed an ABB pattern in the nose sizes (big, small, small) then they can work out that the missing teddy has a big nose. For additional challenge, the teddies can be moved together so the children have to find where the pattern goes wrong for themselves and make a space for the missing teddy to go.



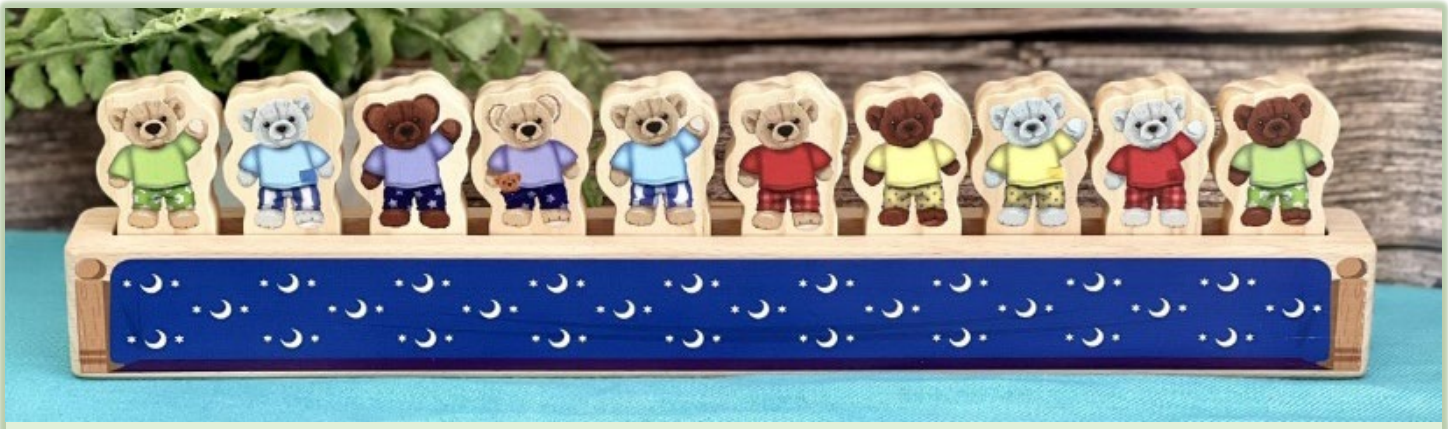
'Is the missing teddy waving? How do you know?'

Once children are familiar with the different features of the teddies (nose size, waving, pockets, fur colour, pyjama colour), they can use the unnumbered side to make patterns for themselves. They can choose which feature to include in their pattern and which to ignore. Children can continue patterns that someone else starts for them by looking for the pattern in the teddies that are already there.



'What comes next?' (Fur colour)

Children can fix patterns where there is an error and the pattern goes wrong. An adult or child might swap two teddies over for the children to find and move them into the correct places for the pattern to work.

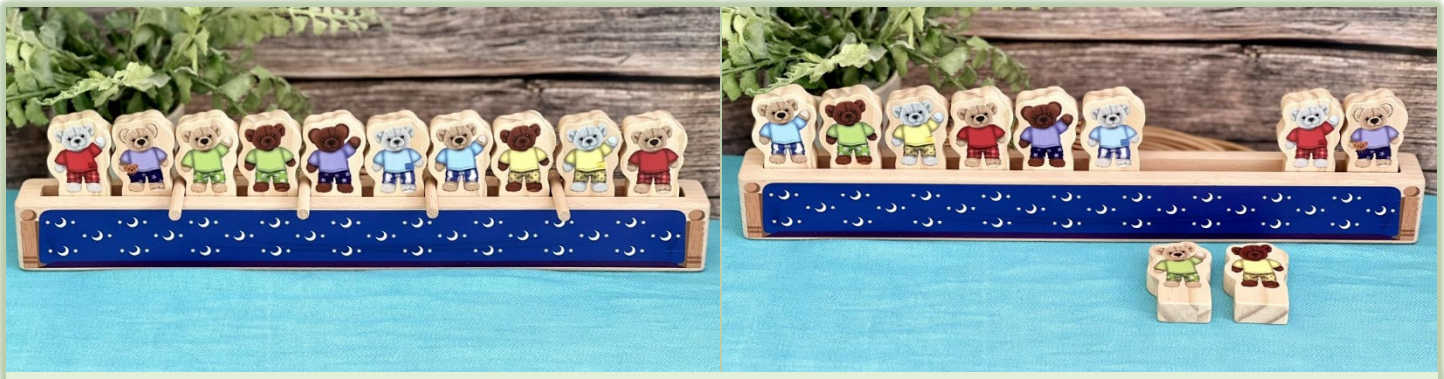


'Can you find the problem and fix it?' (Waving/not waving)

Children can predict how the pattern would continue if it were extended to the right or left of the bed. They can also translate the patterns that they notice using different things to make the pattern out of. They might do body actions to match the pattern, so repeat 'stamp, stamp, clap...' for the 'no pocket, no pocket, pocket ...' pattern on the teddies, because the AAB pattern is the same but it is translated into different items (in this case body actions). Similarly, they could get some leaves and shells and make a 'leaf, leaf, shell, ...' pattern. They might also draw symbols or pictures to match the pattern. Translating the pattern shows that they have understood the pattern structure.

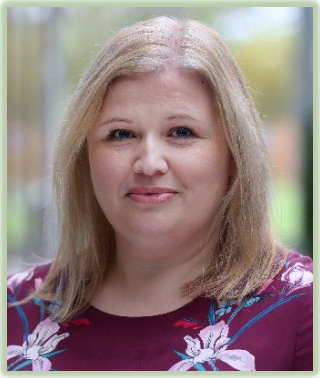
Translating an AAB pattern in the teddy pockets into symbols

A key skill is to be able to identify the **unit of repeat** (the section that repeats over and over to make the pattern). Children can be encouraged to find the **unit of repeat** by identifying the units (such as showing the unit with pencils) or by removing one unit of repeat.



Finding the unit of repeat in an AB pattern (waving/not waving)

Dr Catherine Gripton is an expert in early childhood mathematics education at the University of Nottingham.



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