Counting on Stories: How Picture Books Can Boost Maths Skills

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Picture books can be a powerful tool in supporting mathematical learning in several ways, as they blend narrative with visual elements to engage young learners. Picture books can introduce children to a variety of different concepts and can be used throughout children's early years to introduce and deepen understanding. They are also a strong asset to provide frequent and varied opportunities to build and apply mathematical understanding and to aid children in developing a positive attitude and interest in maths which is highlighted in the Educational Programmes section (pages 9-11) of the EYFS Statutory Framework.

Educational Programmes are *"high level curriculum summaries which set out what should be taught in settings for each area. They must involve activities and experiences that enable children to learn and develop, as set out under each of the areas of learning."* - EYFS Statutory Framework.

The curriculum summary for maths is, *"Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes."* - EYFS Statutory Framework.

There are many ways that picture books can be used effectively to develop and secure Mathematical understanding:

1. Introducing Mathematical Concepts

Picture books often incorporate basic mathematical concepts such as counting, shapes, patterns, size, addition, subtraction and comparisons within their stories. Books like 'One Fish Two Fish Red Fish Blue Fish' by Dr. Seuss or 'Ten Black Dots' by Donald Crews can introduce numbers, counting, and sequences in a fun, accessible way.

2. Building Number Sense

Stories that focus on counting, addition, subtraction, or even division can help build foundational maths skills. For example, 'The Very Hungry Caterpillar' by Eric Carle provides opportunities to explore counting, one more and addition in an engaging way.

3. Visualising Mathematical Ideas

Illustrations provide a visual representation of mathematical concepts, making them easier for young children to see patterns, make connections and begin to understand. For example, books that illustrate patterns or symmetry, like 'Hooray for Fish' by Lucy Cousins, allow children to see patterns in many different ways.

4. Encouraging Problem Solving

Picture books often pose open-ended questions that encourage children to think critically and creatively. This can help them develop problem-solving skills and explore different approaches to solving a problem.

5. Incorporating Mathematical Vocabulary

Picture books can introduce and reinforce maths-specific vocabulary. By reading books that use mathematical language such as "greater than," "equal," "more," or "less," children can start to understand and use the vocabulary necessary to discuss mathematical ideas.

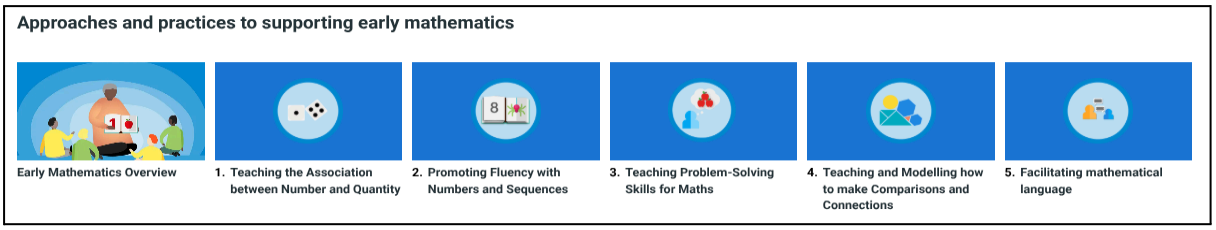
6. Collaborative Learning

Reading picture books can be a shared experience that promotes discussions and collaboration among children. This can help them learn from each other, share their ideas, and develop their understanding of mathematical concepts.

7. Fostering a Positive Attitude Toward Maths

Engaging stories can help build a positive association with maths. Picture books that emphasise fun, curiosity, and discovery help children feel more confident and curious about mathematical exploration.

The [Education Endowment Foundation] (EEF) is a UK-based organisation focused on improving educational outcomes for students, particularly in disadvantaged communities. The [Early Mathematics Evidence Store] includes evidence-informed approaches and practices to support mathematics in the Early Years. All of these approaches can be supported by the use of carefully selected picture books.



You can download the above evidence summaries by clicking here.

In conclusion, picture books offer a rich, interactive way to support and boost mathematical learning by bringing concepts to life for young learners. They help to foster an enjoyable learning experience that children can relate to both in and out of the classroom.

Great North Early Years
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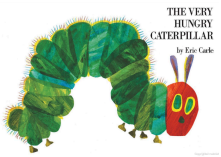
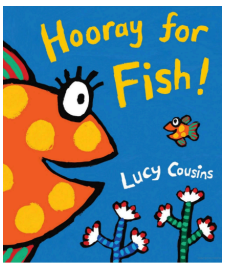
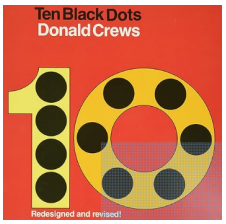
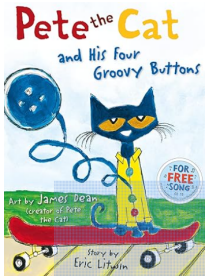
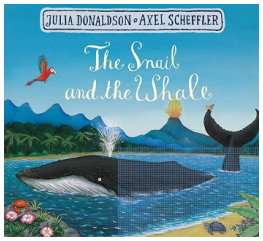
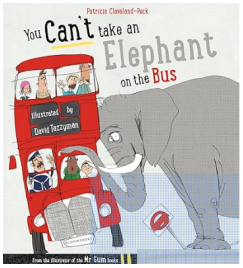
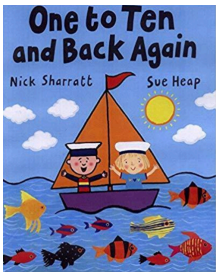
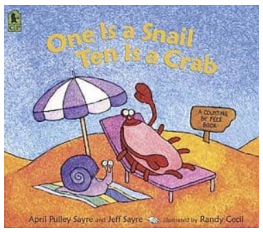
My Top Ten Picture Books to Boost Maths Skills

Here are my top ten picture books that can be used to support mathematics learning for young children…

	Book:		Main maths concepts:	Why the book is great:
1	**One Fish Two Fish Red Fish Blue Fish by Dr. Seuss**		Counting, numbers and simple addition	This book uses rhymes and illustrations to engage children with numbers and counting, helping them practice early number recognition and simple addition.
2	**The Very Hungry Caterpillar by Eric Carle**		Counting, days of the week, patterns, one more	Through the story of a caterpillar eating various foods, children can practice counting and learn about patterns and sequences, such as days of the week.
3	**Hooray for Fish by Lucy Cousins**		Colour, shape and patterns	This book features a variety of fish with different colors, shapes, and patterns on their scales. This naturally introduces the idea of repeating patterns. For example, one fish might have a pattern of red, blue, red, blue on its scales.
4	**Ten Black Dots by Donald Crews**		Counting, number recognition, basic addition	This book introduces counting through a series of objects made from ten black dots. It helps children understand the idea of number composition and basic addition.
5	**Pete the Cat and His Four Groovy Buttons by Eric Litwin**		Subtraction, counting	As Pete the Cat loses his buttons, children can count and subtract to see how many buttons he has left, reinforcing basic subtraction skills and number recognition.

6	**The Snail and the Whale by Julia Donaldson**		Measurement, distance	This story of an adventurous snail and a whale can introduce concepts of distance, size, and measurement in an engaging, story-based way. The whale's journey around the world also offers opportunities to discuss scales of measurement.
7	**You Can't Take an Elephant on the Bus by Patricia Cleveland-Peck**		Size, spatial awareness, problem solving	This funny story introduces the concept of size and space, making it ideal for teaching children about relative size, measurements, and how objects fit in various spaces.
8	**One to Ten and Back Again by Nick Sharratt and Sue Heap**		Counting, one more/less	This story gives children very clear pictures to count, and helps children make links between counting up and counting down.
9	**Bears Love Squares by Caryl Hart**		Shape	The book introduces a variety of shapes and encourages children to look for shapes in their own world, making learning interactive and engaging.
10	**One is a Snail, Ten is a Crab by April and Jeff Sayre**		Counting, simple addition	This counting book introduces children to the concept of counting by feet. The book starts with a snail, which has one foot, and progresses through a variety of animals, each with a different number of feet.