# Embracing Nature: Enhancing Early Years Mathematics through Outdoor Learning

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Exploring the wonders of nature can be a powerful way to foster early mathematical skills. Integrating mathematics into nature offers a unique and effective approach to early childhood education, deeply linking with the principles of the Early Years Foundation Stage (EYFS) Statutory Framework. The EYFS Statutory Framework emphasises the importance of providing a broad and balanced learning experience, and maths in nature perfectly aligns with this vision by fostering a holistic development of young learners. Nature serves as an ever-present, dynamic classroom where children can explore mathematical concepts in a hands-on, meaningful way.

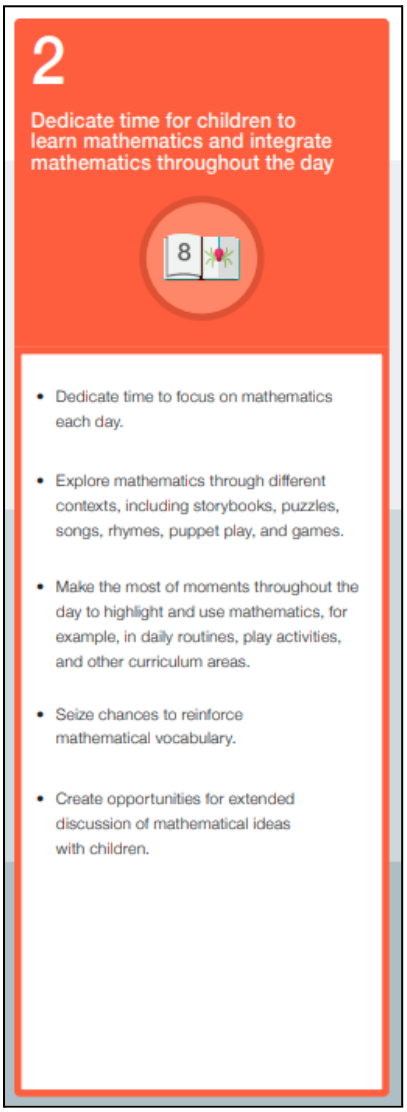
The Early Years Statutory Framework has a section on Educational Programmes. The Educational Programmes are high level curriculum summaries which set out what should be taught in settings for each area. They must involve activities and experiences that enable children to learn and develop, as set out under each of the areas of learning. This is the summary for mathematics:

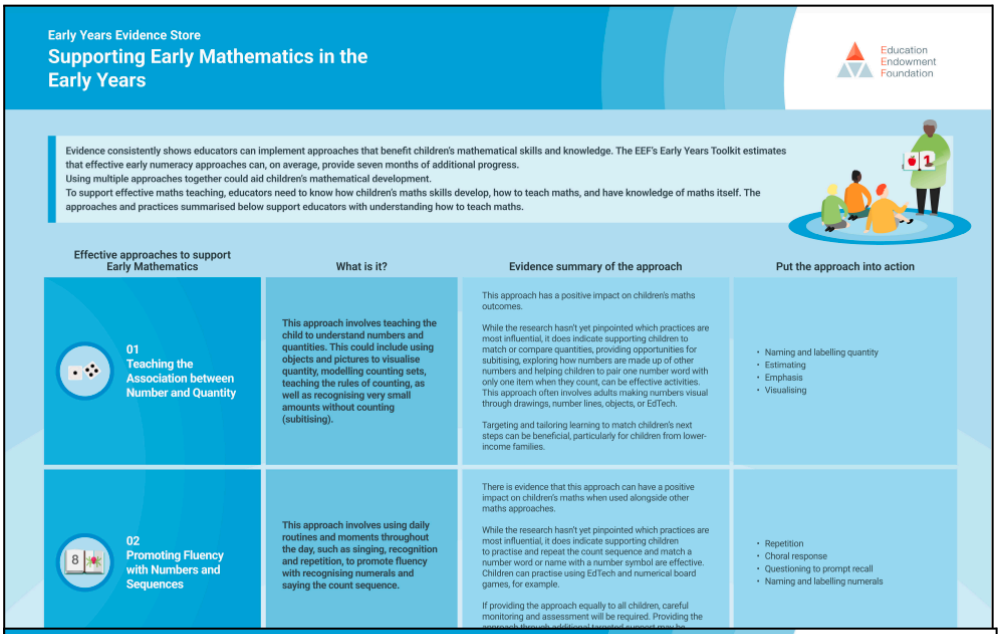
*"Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. 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*

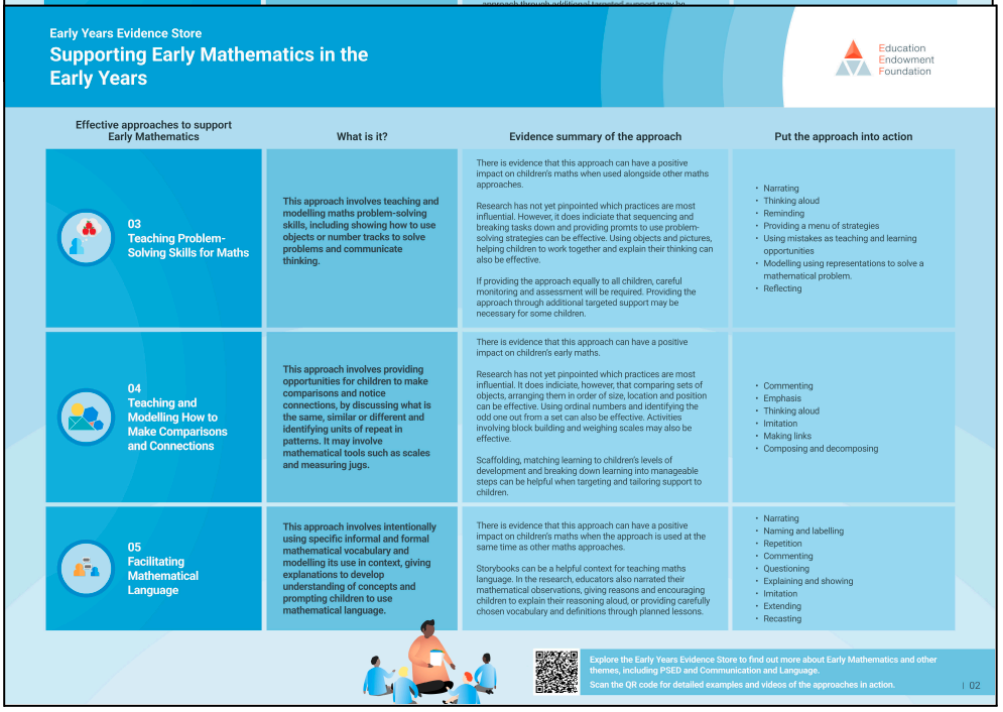
*relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes."*

All of the above Educational Programme summary can be achieved through everyday experiences in both the indoor and outdoor learning environments. For example, counting the petals on a flower, measuring the length of a stick, or observing the symmetry of leaves can all provide practical experiences with numbers, measurement, and spatial awareness. These activities are not only engaging but also help children see the real-world applications of maths, making abstract concepts more tangible and understandable.

Recent insights from the Education Endowment Foundation's (EEF) Mathematics Evidence Store and their "Improving Mathematics in the Early Years" also highlight several approaches that can be integrated into the natural environment. Recommendation 2 from the 'Improving Mathematics in the Early Years' can be particularly focused on during outdoor learning and all of the approaches from the Evidence Store can seamlessly integrate into a natural setting:



The EEF's reports emphasise that such real-world experiences are not just enjoyable but also deeply educational, supporting the development of a strong mathematical foundation. By utilising the natural curiosity that children have about the world around them, practitioners and parents can create rich, meaningful learning opportunities that align with evidence-based practices.

Nature provides an endless supply of resources and scenarios for mathematical exploration. Whether it's observing patterns in flower petals or calculating the time it takes for a shadow to move, the natural world is a vital classroom. According to the EEF's guidance, embedding maths in everyday activities can significantly boost children's confidence and skill in the subject, setting them on a path to long-term success.

The EYFS framework highlights the need for play-based learning, and outdoor maths activities seamlessly blend play with education. Children naturally learn through exploration and discovery, and the diverse environments offered by nature stimulate their curiosity and problem-solving skills. This type of learning supports several of the EYFS early learning goals, particularly in developing numeracy, understanding the world, and fostering communication and language skills. Moreover, integrating maths into nature supports the EYFS's commitment to fostering positive attitudes towards learning. By making maths fun and relevant, children are more likely to develop a love for the subject and build confidence in their abilities. Activities such as sorting and classifying natural objects, estimating the number of steps to a tree, or creating patterns with stones encourage children to think critically and creatively, enhancing their cognitive development.

Here are what I regard as the top 10 advantages for combining mathematics and outdoor learning. These benefits incorporate evidence-informed research combined with my 18 years experience of working with early years children:

1. Hands-On Learning: Engaging with real-world objects like leaves, sticks, and stones makes abstract concepts concrete, aiding comprehension and retention.

2. Improved Engagement: The dynamic and stimulating outdoor environment captures children's interest, making learning more enjoyable and motivating.

3. Enhanced Problem-Solving Skills: Natural settings provide unpredictable challenges that encourage critical thinking and adaptive problem-solving.

4. Physical Development: Outdoor activities promote physical health through movement and coordination, which are crucial for young children's development.

5. Sensory Stimulation: Nature offers diverse sensory experiences that can enhance cognitive functions and memory.

6. Encourages Curiosity and Exploration: The natural world is full of wonders that stimulate curiosity, fostering a mindset of exploration and discovery.

7. Environmental Awareness: Learning maths outdoors helps children develop a connection with nature, promoting environmental awareness from an early age.

8. Social Skills and Teamwork: Group activities in outdoor settings often require collaboration, enhancing communication and social skills.

9. Stress Reduction: Being in nature has a calming effect, reducing stress and anxiety, which can create a better learning environment.

10. Holistic Development: Combining cognitive, physical, and emotional learning aspects supports overall child development and well-being.

In conclusion, by embracing the strategies outlined in the EEF's Evidence Store and 'Improving Early Maths' report, educators and parents can ensure that early maths education is both effective and enjoyable, cultivating a lifelong love of learning in young children. By doing so, they not only adhere to the EYFS Statutory Framework but also enrich the educational experiences of young children, setting them on a path of enthusiastic and lifelong learning. The importance of maths in nature cannot be overstated. It aligns perfectly with the EYFS statutory framework's goals by providing a rich, engaging, and comprehensive approach to early years education. Embracing this method ensures that children develop essential mathematical skills in a natural, enjoyable, and impactful way.