

Numbers Count

ECIE5002

Portfolio

Student Number: 2409978

Element 1

Essay - Why is good numeracy important? 1000 words

Element 1 – why is good numeracy important?

Why is good Numeracy Important?

Good numeracy is important in society today. Numeracy is the ability to understand and work with numbers in everyday life. While focussing on reading and writing being good with numbers is also important for all aspects of society for example, in politics and socially. Numbers provide the proof. An idea is only an option without the evidence to back it up. In politics numeracy is all about making things work in the real world. Governments must deal with important budgets and issue like taxes and healthcare. A leader who understands numbers can make better decisions about where to spend the money during the budgets in every country worldwide. Socially is a tool for fairness and truth. Everyday people are shown charts and percentages and facts on social media and the news. If an individual understands numbers the results that we are shown are easy to read, but for people with low level understanding results may seem scary and seem to give false information. Understanding numeracy is important to help us prove that a story is true, this will make us better students, more informed citizens and wiser voters. Let's explore the importance of why good literacy is important in more depth. According to the National Numeracy Charity 2026, 'Good numeracy is the best protection against unemployment, low wages and poor health. (Schleicher, 2014). As we use numbers in our everyday lives it impacts us socially, professionally and financially. This can affect our health and wellbeing. Some examples of how we use maths in are everyday lives are; keeping budgets for bills, making sense of diet and nutrition and making sense of statistics in the news and social media. Poor numeracy can affect people self-esteem and confidence (Schleicher, 2014). Wickham (2008) has provided a useful summary of why children should talk in the mathematics classroom, concluding that discussion enables children to engage in the process of coming to know about mathematical ideas, talking about real-life mathematics, make connections between different concepts in mathematics, master the language of mathematics, work out why some methods work, work out why something is wrong and reflect upon their own thinking. (Valsa Koshy and Murray, 2002) The three main factors when looking into numeracy are, achievement in the world beyond school, ability signalling, thinking skills and logical reasoning. (Pickering et al., 2025) In the world of politics, numeracy is the difference between a good plan and a plan that fails. Governments are responsible for huge amount money. Politicians must be able to understand forecasts and budgeting to be good leaders. A leader who is good with numbers

can look at a policy and be able to see the long-term impact. However sometimes politicians can use percentages to hide the truth or make a small change sound like a success, both can be misleading to the public. Socially numeracy is an essential tool for personal freedom. Every day we are shown information on social media and the news. We see charts on climate change, statistic about the economy, mortgage rates increasing or declining and information about health care. Numeracy is important to help us understand the risks. Being able to understand numbers is essential for us to interpret the results and make better decisions for our personal and financial health within society. The world is evolving and there are important concepts for us to interpret today. Understanding statistics and data are important in everyday life, it is important to understand how information is analysed and used in society. The radical statistics groups reflect on the use and impact of statistics and present their critical view and input to make a change for the future. Globalisation is the process of creating independence amount countries and to reflect on economic life and social inequalities. Finally, the inequities in health and wellbeing refer to health outcomes of the quality of life in different countries. This highlights the social impact and ethical considerations of statistical analysis. (Evans, Ruane and Humphrey Southall, 2019) In summary, numeracy is much more than a technical skill used by mathematicians as previously perceived. It is an essential part of our society. Throughout this essay we have seen how the ability to understand and use numbers is an essential tool in the real world. Numeracy provided essential evidence that turns observation into fact. It allows researchers to move beyond guesswork and build knowledge that others can trust and rely on. In politics numeracy acts as a bridge between promises and real-world results. Numeracy is a tool that allows for honest budgeting and the ability to measure if a policy is truly helping people in society. On a social level numeracy is a form of empowerment, it gives people the ability to protect themselves from misinformation, biased media and misleading statistic. Ultimately being good with numbers means to be a more engaging and critical member of society. Numeracy allows us to see the world as it is. By valuing numerical literacy as much as reading and writing, we ensure a future based on fairness, facts and informed decision making.

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Element 2

Blog – What can schools do encourage numeracy? 1000 words

Element 2 - Blog, what can schools do encourage numeracy?

What schools can do to encourage Numeracy.



Over the past few years, a noticeable shift has taken place in education. Many schools are moving away from the traditional term mathematics and instead placing a stronger emphasis on numeracy.

The word numeracy highlights something more practical, for example the ability to use numbers confidently in everyday life.

Schools adopting the term numeracy is a refocus on real world application, like budgeting, interpreting data, understanding risk, and making informed decisions.

It's a shift toward empowering students with skills they can use beyond the classroom, not just in exams.

'Thinking mathematically is not an end in itself; rather a process through which we make sense of the world around us.'

(Mason 1982, in Tanner and Jones, 2000)



(stock image)

So how can we encourage numeracy in schools?

1. **Estimation stations** - ask children to guess quantities of marbles or pasta in jars.
2. **Interactive Displays** - Add maths questions around the classroom and around the school.
3. **Maths trails** - Ask children to guess the length of benches and spot shapes around the school.
4. **Build a numbers rich environment** - Interactive number outside as well as within the school.
5. **Cooking** - measuring capacity, mass and diameter, area and volume.
6. **Sewing and DIY** - Exact measuring of lengths and angles. (Compton, Fielding and Scott, 2012)

Growth Mindset



(stock image)

If we as staff normalise numbers talk, this will create a positive attitude to maths and will improve children's confidence. Positive modelling and praising effort and strategies used to reach the answer will improve self-esteem.

'Adopting a growth mindset leads to greater resilience, improved performance, and a willingness to embrace challenges in education.' (Piet 2025)

Ways of embedding numeracy across the curriculum; -

- **History or Geography lessons** - use graphs, charts and devises to analyse data, for example climate or population.
- **PE & Music** - Track sports scores, bleep test with a stopwatch to measure time or use rhythm and beats to measure patterns.

Share children's maths wins in school newsletters and hand out certificates during the weekly assembly!

The **key** is to focus on what the children can do, instead of what they can't do.

Children who learn math at a young age will grow up seeing numeracy as interesting rather than scary. They'll learn that their home experiences, natural ideas, and curiosity are valuable tools for understanding numeracy. Teachers who use this approach will be better prepared to help learners make sense of numeracy by asking thoughtful questions and presenting meaningful problems. They'll also feel more confident because they understand how math ideas connect and build on one another. (Carpenter 2017)



(Staffs. sch. uk, 2017)

Problem Solving

In Primary Schools problem solving is sometimes mistaken for harder numeracy. However, it is a vital skill to help children navigate throughout their school life. The key concept of problem solving is to teach children the process rather than teaching the answer.

We can do this by focusing on the following-

Normalise any struggle	Encourage discussion and questions
Present problems in stages	Split the question up
Celebrate mistakes	Shift focus away from the result
Use encouraging, positive phrases	'I love how you're trying a different way'
Encourage sharing strategies	Scaffolding-encourage discussions with peers
Questioning and structured reflection, the debrief	Ask questions like,

	‘Did you get that correct?’ or ‘What would you do differently next time?’
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(Compton, Fielding and Scott, 2012)



(stock image)

Types of learning characteristics

How to identify individual learning styles -

Inchworm learners	Grasshopper Learners
Are prescriptive	Intuitive thinkers
Write down information	Make estimates
Like fact	Like the bigger picture
Follow procedures	Solve problems mentally
Enjoy analysis	Enjoy investigation

Those who favour an inchworm approach may struggle if they are unable to remember a method or strategy upon which they rely, whereas grasshoppers need to learn to document their work so they can keep track of their thinking and their work can be understood and any errors identified. (Compton, Fielding and Scott, 2012)

According to the National Literacy and Numeracy the LNF focuses on the learner's ability to apply the skills and concepts they have learned to complete realistic tasks appropriate for their stage of development. (National Literacy and Numeracy Framework To support schools in introducing the National Literacy and Numeracy Framework Information, 2013)

In Summary

Overall, this blog explores how schools can effectively encourage numeracy by moving beyond traditional mathematics teaching and embracing practical real-world approach. While maths often focusses on procedure and formal concepts numeracy emphasises using numbers in everyday life, such as

budgeting interpreting data and making informed decisions. This shift will provide learners with the skills that extend beyond the classroom. This blog highlights several engaging strategies that schools can use to build positive numeracy experiences. Activities like estimation stations, maths trails, interactive displays and numbers of rich environments help children see numbers as part of their world. It is important for teachers to use positive language, and model enthusiasm for numeracy. Children will then develop resilience and confidence. This will encourage them to embrace new challenges and view numeracy as something they can get better at. By valuing diverse strategies and by making numeracy meaningful, schools can help children see numbers as interesting and useful.



(stock image)

References

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Staffs.sch.uk. (2017). Our Lady & St. Werburgh' s Catholic Primary School – Outdoor Maths. [online] Available at: <https://www.ourlady-st-werburghs.staffs.sch.uk/curriculum-information/maths/outdoor-maths> [Accessed 20 Feb. 2026].

Element 3

Resource – Information Sheet for professionals about a numeracy resource of your choice which aims to support numeracy development in pupils with ALN. equivalent to 500 words

Element 2 – Information sheet.

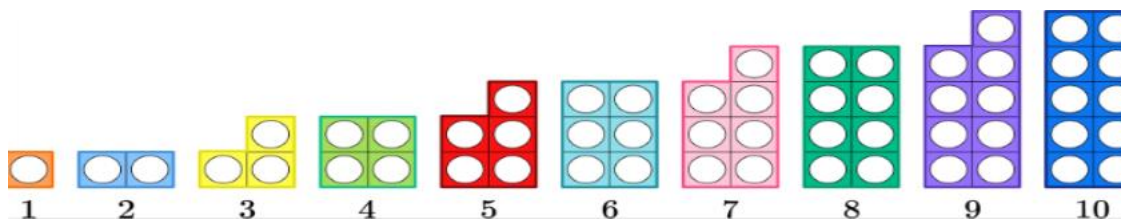
Professionals Information Sheet

Numicon



(Crawley 2016)

Numicon is a multi-sensory hands-on teaching resource helping children to understand the relative size of 1-10 and larger. By having a physical object that children can hold and manipulate, children are more inclined to make connections that allow them to work with numbers. Numicon are especially effective for ALN children as they act like a translator between language and action. There are many different types of and ways of using numicon in the classroom for all key stages.



(Marlow 2023)

The benefit of Numicon

Many ALN children struggle with addition.
Numicon trains the brain to recognise patterns.

Numicon Shapes - Plastic coloured shapes

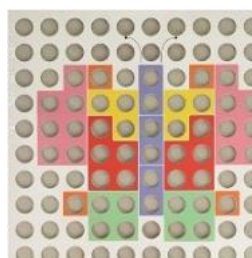
which represent the numbers 1-10.



(Abe books 2020)

Numicon Baseboard - A pegboard that the Numicon shapes fit on with round pegs.

Numicon Baseboard Overlays - Picture cards that fit onto the baseboard to help children to



form number bonds or different numbers.

(Abebooks2020)

Numicon Pegs - Small coloured close-ended beads which fit onto the pegs in the baseboard to help children to ensure they count the Numicon correctly.

Math using numicon

Number recognition, learning to count, place value, addition, number bonds, subtraction, times tables, fractions, odds v's evens, measuring and geometry.

Numicon Number Line - A number line but with Numicon shapes pictured alongside the numerals. (Crawley, 2016)

Learners will generally go through four stages of learning using numicon.

Ordering - ordering shapes from largest to smallest and smallest to largest.

Pattern - pupils find similarities or patterns and differences in the shapes.

Early calculating - using the pieces to perform simple calculations.

Counting - counting each hole one by one – this gives the pupil a knowledge of what each piece represents for example use beads or pompoms in each hole when counting. (Crawley, 2016)



(Abebooks2020)

Advantages of Numicon
Builds confidence – improves overall self esteem
Fine motor development – improve co-ordination and fine motor skills
Multi-sensory engagement – allows learners to see, feel and manipulate numbers
Outdoor learning – larger numicon can be used outdoor provision and intervention.
Versatile – can be used throughout all key stages to support several different curriculum topics
Visualising number relationships – help to recognise numbers without calculating
Supports communication – used as thinking tools and support children with limited language.

(Crawley 2016)

According to the Welsh Government Curriculum for Wales the expectation for all learners within numeracy are-

Developing numerical reasoning

Using number skills

Using measuring skills

Using data skills

(Welsh Government, 2015)

Inclusion and Communication

Numicon is used across the whole of primary schools. Specific school are numicon advocates and share best practice via their school's website.

ALN children can use the same resource as their peers, promoting inclusive practice. Numicon are especially beneficial for children with speech and language difficulties. This reduces frustration through logic by showing rather than telling.



References

Abe Books (2020). *Numicon: Number Bond Baseboard Overlays by Unknown: As New (2001)* | *GreatBookPricesUK*. [online] Abebooks.co.uk. Available at: https://www.abebooks.co.uk/servlet/BookDetailsPL?bi=31725169423&dest=gbr&ref_=ps_ms_391307717&cm_mmc=msn_-_uk_shopp_textbook_-_naa_-_naa&mcsclid=c8aa64a4618d1f4e5be10d319bc5aae6 [Accessed 18 Feb. 2026].

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Element 4

Video of the resource in action 3 mins (equivalent to 500 words)

Please find the link to my video below.

<https://youtu.be/3vwnxWK-eoA?si=W8nLRiedJKGIk9x8>

Element 5

Evaluation of the resource 1000 words

Element 5 – Evaluating Numicon

Evaluation of Numicon

For many children numeracy can feel like a confusing language of rules and symbols. To help children understand many schools use Numicon. The tool is a selection of colourful plastic shapes, where each hole represents a number. This tool is based on the idea that children learn best when they can touch and see an object. Whilst Numicon was initially used and created for children who find numeracy difficult it is now widely used in all primary schools to teach everyone. Numicon is popular because it turns abstract numbers into physical games. This essay will evaluate whether the shapes help children to build a strong foundation for the future, or if Numicon makes it harder to move onto more difficult numeracy. This essay will also explore the theoretic framework of Jerome Bruner's Concrete Pictorial Approach (CPA) and evidence-based studies. Also, the advantages and disadvantages of Numicon, does Numicon prove beneficial for every child. It will discuss the concept in the real world. It will discuss whether other factors should also be considered when using the resource. The focus has shifted in recent years from the word, Math, to the word Numeracy as children find the word Maths intimidating and can cause Maths stress anxiety. Numeracy is the ability to apply math to everyday life. During recent government reforms in the UK, efforts were made to strengthen numeracy by updating both policy and the curriculum. The aim was to place numeracy on par with literacy, to highlight that being good with numbers is just as essential as being able to read and write. (Department for Education, 2025)

To be able to understand why Numicon is so popular we must investigate how children's brains learn. The theorist Jerome Bruner argued that children need to go through three steps to learn something new. He believed that firstly they, touch it, which is Concrete, secondly, they see it, which is Pictorial, and finally they understand the numbers and symbols, which is Abstract. This is known as the CPA approach. (Bates, 2015) This theory is relevant to numeracy and the process of learning as well as all areas of the curriculum. Numicon is perfect for this approach as the plastic shapes give children a mental picture of that a number looks like. Numicon was specifically designed for ALN children but has proved advantageous for all children's learning and is widely used in all primary schools in all classrooms. There are many advantages to Numicon, let's explore these in more detail. The advantage of Numicon is that they are a multi-sensory coloured tool which are easy to manipulate and help children to remember the numbers that are linked to the colour. They are versatile and can be used for several different topics across the curriculum from early years to key stage two. They support the CPA approach to teaching maths, including interventions when working with ALN children and can also be purchased in larger form for outdoor provision. As for the disadvantages Numicon can be seen as toys and small pieces can get lost. The initial cost of the whole set can prove expensive. Children can become reliant on colours rather than the

numbers. (Marlow, 2023) According to an Oxford impact study in 2019 two hundred and forty-five primary schools took part in a survey allowing teachers to share their view on Numicon. The findings show Numicon is widely perceived to help children improve their mathematical communication and use of language and vocabulary relating to maths. The report shows that Numicon is beneficial for all children including children with special educational needs. There are many ways to incorporate Numicon into the classroom and outdoor spaces. I believe that teachers and teaching assistants should keep Numicon on display in the classroom, on tables, in tough spots, sand trays, water tray and mix the resource with playdough. Children will memorise patterns without realising. A visual tactile experience with Numicon will build confidence with maths.

In summary the biggest strength to Numicon is making invisible numbers something that children can touch and see. Numicon build confidence with numbers and improves communication and mathematic language. Numicon is an excellent way to start all children's learning journey. Numicon is linked to discovery by having a physical object that children can hold and manipulate, children are more inclined to make connections that allow them to work with numbers. Numicon are especially effective for ALN children as they act like a translator between language and action. Overall Numicon has many advantages, its colourful, easy to handle and helps children link numbers with colours and patterns. It can be used across the whole curriculum including in outdoor learning activities. It supports the CPA approach and works well with interventions.

In conclusion Numicon proves an effective resource to support primary school children with their numeracy development, it enables learners to build a secure foundation in number understanding. Numicon aligns closely with Bruner's CPA approach. Numicon is a resource that when integrated well it will enrich the learning journey for all children.

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