

Module: ECIE5002

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Element 1.

Why is good numeracy important?

Good numeracy is important within the classroom; however, its importance extends beyond the school environment. In Wales, numeracy is identified as a national priority through the Curriculum for Wales, where it is embedded as a cross-curricular skill intended to support learners in developing the mathematical understanding needed for everyday life (Welsh Government, 2022). Numeracy is therefore not only an educational concern, but also a social and political one, as it is closely linked to individuals' life chances, employability and ability to participate as informed citizens. In a society shaped by economic uncertainty and increasing use of data, the ability to understand numbers, manage money and interpret information is essential. Developing strong numeracy skills is therefore important not only for academic achievement, but also for wider social inclusion and participation in Welsh society (Welsh Government/Hwb, 2013).

One important aspect of early numeracy development is its relationship with school engagement and attendance. Research shows that lower attainment, including numeracy, is often linked to poor attendance and disengagement from school. Evidence suggests that pupils who attend school more regularly are more likely to achieve expected standards in GCSE mathematics than those with persistent absence (Children's Commissioner, 2023). This indicates that truancy and disengagement may contribute to learners falling further behind in numeracy over time. Research from Wales also shows that low basic skills, including numeracy, combined with disengagement such as truancy, are common among young people at risk of becoming NEET (not in education, employment or training), highlighting how early difficulties can affect later educational and employment outcomes (Welsh Government, 2019).

However, the relationship between numeracy and attendance is complex and cannot be explained by a single factor. Pupils' engagement with numeracy is influenced by a range of contextual and pedagogical factors, including teaching quality, curriculum relevance and learners' attitudes towards mathematics. Research from the Children's Commissioner for England indicates that many pupils view mathematics as abstract and disconnected from real-life situations, which can reduce motivation and engagement. The report highlights the value of more practical learning, such as financial numeracy, including understanding tax, interest rates and mortgages (Children's Commissioner, 2024). National policy reviews also suggest that although numeracy underpins financial capability, there is limited explicit financial education within current curricula, which may reduce learners' understanding of how mathematics applies beyond school (House of Commons Education Committee, 2024).

This suggests that schools need to consider both skills development and curriculum relevance.

Poor numeracy can have long-term consequences beyond compulsory education, particularly in relation to employment and income. Research shows that adults with low numeracy skills are more likely to experience insecure employment, limited career progression and lower earnings over time. National Numeracy estimates that low numeracy skills cost the UK economy billions of pounds each year through reduced productivity, lower wages and increased reliance on welfare support (National Numeracy, 2021). Welsh Government data similarly indicate that adults with low numeracy are less likely to be in sustained employment and more likely to experience difficulties managing finances and accessing further training (Welsh Government, 2011). These findings highlight the importance of numeracy as a key skill supporting economic participation.

Numeracy is also used regularly in everyday adult life. Individuals rely on numeracy skills to calculate time, manage money, interpret information and make decisions related to health and wellbeing. Tasks such as calculating travel times, adjusting recipes, checking change, budgeting, supporting children with homework, managing nutrition, measuring medication doses and interpreting graphs or statistics in the media all require functional numeracy. When these skills are weak, individuals may experience lower confidence, increased anxiety and a greater risk of financial or health-related mistakes. Evidence from Pro Bono Economics shows that adults with low numeracy are more likely to experience financial difficulties, including problems with debt and money management (Pro Bono Economics, 2014).

The wider social impact of poor numeracy can also be seen within the criminal justice system. Research indicates that numeracy difficulties are over-represented among prison populations in England and Wales. Official figures suggest that approximately 55–65% of people in prison have numeracy skills below Level 1, broadly equivalent to primary-school level (Prisoner Learning Alliance, 2020; Ministry of Justice, 2023). Although low numeracy does not cause criminal behaviour, it is linked to wider issues such as unemployment, financial instability and social exclusion. This highlights the long-term social costs associated with unmet numeracy needs.

From a social and political perspective, poor numeracy contributes to wider patterns of inequality. Individuals from disadvantaged backgrounds are more likely to experience difficulties with numeracy, reinforcing cycles of poverty and limiting social mobility. The Welsh Government's commitment to creating a more prosperous and equal Wales, as outlined in the Well-being of Future Generations (Wales) Act, places skills development, including numeracy, at the centre of long-term prevention and economic resilience (Welsh Government, n.d.). In this context, numeracy is not simply an individual skill but a public policy issue, with implications for workforce development, public health and civic participation.

From a political perspective, numeracy is closely linked to national priorities around productivity, public spending and prevention. The Welsh Government has highlighted the importance of foundational skills in reducing poverty, improving employability and decreasing reliance on public services (Welsh Government, 2011; Welsh Government, 2022). Low numeracy is associated with increased costs to the state through unemployment, welfare dependency, poor health outcomes and involvement with the criminal justice system. This suggests that failing to address numeracy early represents not only an educational challenge, but also a financial and policy concern. Estyn has identified numeracy as an area requiring improvement within Welsh schools, reinforcing the responsibility of government and education systems to ensure effective teaching and leadership in mathematics (Estyn, 2025). Investment in early and meaningful numeracy education can therefore be viewed as a preventative political strategy that supports a more skilled and resilient population while reducing long-term public expenditure.

In conclusion, good numeracy is essential not only for academic achievement but for wider social, economic and political participation throughout life. Evidence from Wales and the wider UK demonstrates that poor numeracy is linked to lower educational engagement, reduced employment opportunities and increased social inequality. As numeracy is closely connected to long-term outcomes such as financial security, health and civic participation, its development should be viewed as a key preventative priority within education policy. Ensuring that learners acquire meaningful and relevant numeracy skills from an early age is therefore central to reducing later-life disadvantage and supporting a more equitable and resilient society.

References for Element 1:

Children's Commissioner (2023) *Attendance and attainment*. London: Office of the Children's Commissioner. Available at: <https://www.childrenscommissioner.gov.uk> (Accessed: 10 January 2026).

Children's Commissioner (2024) *Children's voices on mathematics*. London: Office of the Children's Commissioner. Available at: <https://www.childrenscommissioner.gov.uk> (Accessed: 10 January 2026).

Estyn (2025) *Unlocking potential: insights into improving teaching and leadership in mathematics education*. Cardiff: Estyn. Available at: <https://www.estyn.gov.wales> (Accessed: 10 January 2026).

House of Commons Education Committee (2024) *Delivering effective financial education*. London: UK Parliament. Available at: <https://publications.parliament.uk> (Accessed: 10 January 2026).

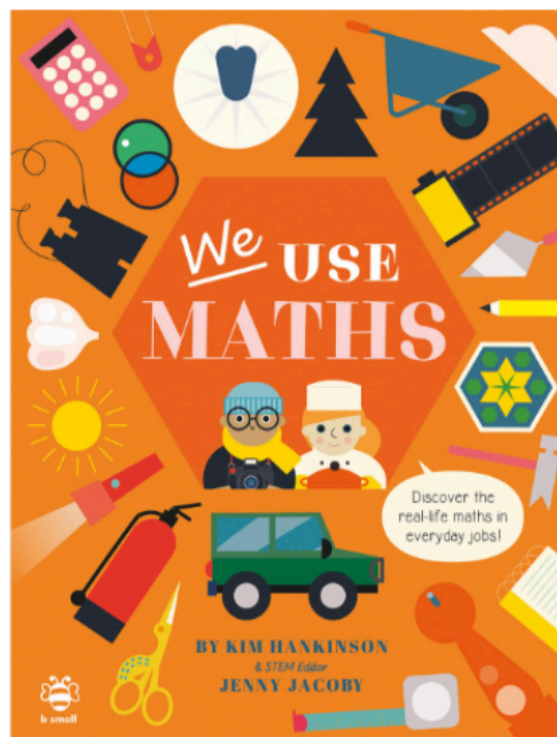
Ministry of Justice (2023) *Prison education and accredited programme statistics, England and Wales*. London: Ministry of Justice. Available at: <https://www.gov.uk> (Accessed: 10 January 2026).

National Numeracy (2021) *The cost of low numeracy to the UK economy*. Available at: <https://www.nationalnumeracy.org.uk> (Accessed: 10 January 2026).

Element 2.

From Algebra to Aldi: Why Numeracy Needs a Real-Life Makeover.

If I had a pound for every time a child asked, “When are we even going to use this?”, I would be rich enough to retire and never have to laminate anything again.



(Hankinson and Jacoby, 2017, book cover)

It's a question that crops up everywhere — often during algebra, normally asked with attitude when really, it's an honest question. And honestly, I get it. When learning feels irrelevant to real life, it's hard for children to see the point. So, what's the actual solution (without killing the joy)?

Turns out the Welsh curriculum has already answered that. If schools in Wales genuinely want children to value numeracy, the answer isn't another scheme, intervention or colourful folder that lives on a shelf. The solution is much simpler — and already expected of us. It's about making maths a normal, everyday part of school life, not something that only appears during a timetabled lesson. The Curriculum for Wales makes it clear that numeracy is a cross-curricular responsibility. In other words, maths isn't just the maths teacher's job. It's something children should be seeing, using and talking about across the day, in real situations that make sense to them (Welsh Government, 2022).

Working with children across a wide age range has taught me one crucial lesson about numeracy: it only truly sticks when it feels meaningful. Worksheets have their place (I know, controversial), but genuine understanding develops when maths escapes the page and appears in everyday life — ideally somewhere between snack time and playtime. This principle applies to all learners, from early years through to GCSE. Too often, children disengage not because they can't understand the maths, but because they can't see how it will ever be relevant to their future.

In our LRC classroom, numeracy and literacy are our focus. Once those are down, everything else can follow. Cooking is one of our favourite ways to make numeracy meaningful (because numeracy is far more appealing when snacks are involved). We write a shopping list, walk to the shop, compare prices and attempt to stick to a budget, that at least one child thinks is unlimited. Back to school, numeracy continues through weighing ingredients and timing how long things need in the oven. The children practise money, measure and time without ever realising they're 'doing numeracy'. It's just feels like real life, with baked goods at the end.

Maths that matters (a.k.a. the maths they'll really use)

When numeracy is meaningful, it rarely looks like neat columns of sums. It looks more like:
"How many cups do we need so everyone gets a drink without World War Three breaking out?" or

"You're eight now — how many sleeps until your birthday?"

These moments are gold. They're spontaneous, rooted in real life, and full of purpose. The best part? Children don't even realise they're "doing maths". They're simply solving problems that matter to them.

One of my favourite ways to sneak maths into our day is through the date. We have the day of the week and the date on our check-in board, and every morning we change it together. Instead of just telling the children what today's date is, I'll usually say something like, *"Ooo... yesterday was the 15th. I wonder what today might be? What's one more than fifteen?"*

Someone will always shout out an answer — sometimes right, sometimes said with great confidence but very little accuracy — and rather than correcting them straight away, we all count together to check. It's quick, it's simple, and it happens naturally as part of our routine. Without even realising it, the children are practising counting, sequencing and checking their thinking, all through something that already matters to them: knowing what day it is.

This doesn't stop as children get older — in fact, relevance becomes even more important. Many pupils decide early on that they are "bad at maths", often because their experiences have felt disconnected from real life. I've seen learners shut down the moment a worksheet appears, only to thrive when maths is reframed around something familiar: planning a party, budgeting for an activity, or working out how much something will cost. When children are adding, subtracting or estimating for a clear purpose, confidence grows quickly.

No tears. No refusal. No *"I can't do this."*
Just maths with a reason.

That's the difference. Real-life numeracy gives learners a reason to engage, and for many children, that reason is what has been missing all along. The Curriculum for Wales makes it clear that numeracy is a cross-curricular responsibility. In other words, maths isn't just the maths teacher's job. It's something children should be seeing, using and talking about across the day, in real situations that actually make sense to them (Welsh Government, 2022).

In primary schools, this can be as simple as talking about money, time and measure regularly and on purpose. Handling coins, comparing prices, working out how long until lunchtime, estimating how long a task might take (and then realising we were wildly optimistic) — these moments all count. They help children build confidence with numbers in contexts they recognise, rather than memorising methods with no clear purpose. As children move into upper primary and secondary school, the maths needs to grow up with them. This is where numeracy starts to connect with real independence. Understanding wages, payslips and tax suddenly make percentages and algebra feel far more relevant. Maths stops being about getting the answer right and starts being about understanding how the world works. Time is another big one.

Many pupils struggle with planning and long-term thinking, yet time underpins revision, coursework deadlines and eventually employment. Exploring how time adds up — across days, weeks and months — helps learners make sense of both maths and real-life

expectations. Then there's money in its more complicated (and slightly terrifying) forms.

Credit cards, loans, interest and APR rates are things many adults admit they don't fully understand — so it's no surprise young people leave school confused. Teaching pupils what interest means, why borrowing costs more than you expect, and how repayments work overtime could genuinely change future outcomes. This isn't about turning pupils into financial experts; it's about helping them ask better questions later.

What can we do? Turns out the curriculum already answered that!

So, what can schools do to encourage numeracy? It's less about inventing something new and more about being braver with what we already have. Schools can encourage numeracy by embedding it daily rather than occasionally, teaching maths for use and understanding rather than purely for assessment and consistently linking learning to real-life impact. The

Curriculum for Wales already supports this approach; numeracy is designed to be cross-curricular, purposeful and progressive. The challenge is not the curriculum itself, but how confidently it is applied in practice. In the UK, we have almost normalised the idea that it is acceptable to say, "I'm just bad at maths" — something we rarely hear about reading or writing — and this mindset can defeat learners before they have even begun. By making numeracy familiar, relevant and low-pressure, schools can reduce anxiety and build confidence. And when maths shows up in everyday life — from counting change to planning time — children stop asking why it matters. They already know.

References Element 2:

Estyn (2022) *Developing Numeracy in Schools*. Cardiff: Estyn.

Hankinson, K. and Jacoby, J. (2017) *We Use Maths*. London: b small publishing. Book cover illustration. Available at: Publisher's website. (Accessed: 24 January 2026).

OECD (2019) *PISA 2018 Results: What Students Know and Can Do*. Paris: OECD Publishing.

Welsh Government (2013) *National Numeracy Framework*. Cardiff: Welsh Government.

Welsh Government (2022) *Curriculum for Wales: Framework Guidance*. Cardiff: Welsh Government.

Element 3.

BASELINE NUMERACY ASSESSMENT

This baseline numeracy assessment is a practitioner led tool used to identify early numeracy understanding in pupils, particularly those in Early years or with Additional Learning Needs (ALN). It focuses on foundational numeracy skills that underpin later numeracy development, including number recognition, counting, subitising, one-to-one correspondence shape recognition and early number writing. The assessment is recorded across multiple terms throughout the school year allowing professionals to monitor progress overtime and identify emerging or persistent gaps in learning.



(OpenAI, 2026)

How is it used?

During each assessment, the practitioner works one-to-one with the pupil to identify what they already know and can demonstrate without help. Although help cannot be given to the pupil, practitioners can find interesting ways to engage students. For example, if students' favourite toy is a dinosaur, The practitioner may ask the student “can the dinosaur jump onto the red colour?” to encourage their engagement while maintaining the independence of the assessment. Assessment session length can also be altered to help with engagement, the assessment can be broken up and completed 1 page at a time until completed, or if the pupil is engaging well the practitioner can continue. While completing the assessment, outcomes are recorded directly on the sheet, providing a clear overview of the pupil's strengths and areas that leave room for development. The record sheet has room for 3 assessments throughout the school year, which also gives the ability to show the progression

through the year all on one sheet. This fits in with the Curriculum for Wales by supporting progression-focused, learner-centred assessment the helps practitioners understand where each learner is int their development plan meaningful next steps in learning (Welsh Government, 2022).

Purpose.	Overview of use.
The purpose of this resource is to provide professionals with a clear starting point for planning numeracy support. Early identification of need is essential in ensuring appropriate support is implemented and misconceptions are not allowed to become embedded.	The assessment is designed for individual, one to-one use and is carried out in a familiar, supportive environment. This approach allows practitioners to adapt pacing, language and support to meet the needs of each learner.
Level of Ability. The resource is suitable for pupils working at early developmental stages or below age related expectations. It can be adapted to suit a wide range of abilities by adjusting prompts, support and session length.	Recording Progress. Recording outcomes across assessment points enables professionals to identify small steps of progress and evaluate the effectiveness of targeted interventions, supporting responsive planning.



(OpenAI, 2026)

Theoretical Underpinning.

This resource provides a quick and meaningful insight that can inform planning and targeted support. It reflects the work of Jean Piaget, whose theory of cognitive development suggests that children learn most effectively when teaching is matched to their developmental stage (Piaget, 1952). By identifying what pupils understand about number, quantity and classification, the assessment helps ensure that learning is built on secure conceptual foundations. This aligns with a constructivist view of learning, which recognises that knowledge develops through active understanding rather than simple memorisation. In practice, this makes the resource a useful tool for supporting responsive teaching and promoting meaningful numeracy development.

Reference List:

Piaget, J. (1952) *The Origins of Intelligence in Children*. New York: International Universities Press.

Welsh Government (2022) *Curriculum for Wales: Mathematics and Numeracy Area of Learning and Experience*. Cardiff: Welsh Government. Available at: <https://hwb.gov.wales/curriculum-for-wales> (Accessed: [15th February 2026]).

OpenAI (2026) AI-generated image of baseline numeracy assessment sheet on a clipboard. Created using ChatGPT image generator. Available at: <https://chat.openai.com> (Accessed: [15th February 2026])

OpenAI (2026) AI-generated image of numeracy assessment materials and activity sheets. Created using ChatGPT image generator. Available at: <https://chat.openai.com> (Accessed: [15th February 2026])

Element 4.

Video Link: [VID 20260223 154517.mp4](#)

Element 5.

This essay will look at the value of a practitioner-led assessment, used to identify early numeracy and literacy skills. The resource measures base knowledge such as number recognition, one-to-one correspondence and shape identification. And it is used numerous times across the academic year to monitor progress. While the assessment provides practitioners a good insight into learners' emerging skills, its effectiveness must be considered critically in relation to the Numeracy Framework for Wales, relevant learning theories, and observed learner progress. This reflection evaluates both the strengths and limitations of the resource and considers whether it is an effective progress supporting resource.

While this resource isn't a way to improve numeracy skills, it accurately tracks what learners know and enables the teachers to focus on areas in need of support. The resource pack is minimal and simple in design which makes it easy for learners to focus and quick for teachers to complete and read through when needed. It is a one to one- assessment which allows practitioners to gauge an accurate picture of each learner understanding without the risk of the learners copying or relying on each other for the answers. While this is excellent for data the time needed to complete these assessments is in short supply classrooms. This can sometimes lead to learners having to wait an extra week or month to complete each assessment. While this isn't a large concern, as the resource is suitable for flexible pacing it does then ask the question "are the progress monitoring results reliable?"

To consider the reliability of progress monitoring, it is important to look at how development is tracked over time rather than at a single point. The repeated use of the assessment across the year allows practitioners to build a cumulative picture of learning. This helps identify small but meaningful learning moments, such as improved number recognition or more accurate one-to-one counting. However, this data should be interpreted carefully. Delays between assessments may mean progress is recorded after it has already occurred, rather than when learning happens. Performance can also be influenced by factors such as confidence, attention or familiarity with the assessor. This means, while the assessment

provides clear evidence of a measurable change, it may not completely show consistency of a learners' numeracy understanding.

Despite its strengths, there are limitations to this resource, particularly around inclusivity and early years pedagogy. One-to-one assessment can be stressful for some learners, especially those who are anxious Pathological Demand Avoidance (PDA) or unfamiliar with structured testing. Although many English as and Additional Language (EAL) and Additional Learning Needs (ALN) learners can access the assessment flexibly — for example, some non-verbal children may understand but be unable to demonstrate their understanding through verbal responses such as counting aloud or naming numbers. But instead, the practitioner can encourage them to use preferred toys to indicate answers.

Compliance can also affect accuracy. Young children are not always compliant to learn or will not demonstrate what they know on demand, and factors such as mood, attention or willingness to engage can influence responses. Practitioners may need to rely on professional judgement and revisit assessment at another time. Which as mentioned previously time to carry out these assessments is minimal in a busy classroom. A further limitation to this resource is restricted role of play. The Early Years pedagogy emphasises learning through play, exploration and active engagement. Yet this assessment is structured and adult led. While it produces clear measurable data, it does not align with play-based approaches, creating tension between assessment practice and early years principles.

From a theoretical viewpoint, this assessment stands closest to the behaviourist approaches to learning. Behaviourist theory, particularly Skinner's work, focuses on what can be clearly seen and measured in response to a specific prompt. So, although the assessment is adult-led, the pupils independence is maintained in that learners respond without support or prompting. However, the structured nature of the task means that independence is limited to demonstrating knowledge within a controlled setting, rather than applying skills in child-led learning task. However, behaviourist approaches have been widely critiqued for focusing on outcomes rather than understanding the learning process itself. While constructivist theorists such as Piaget argue that children actively construct knowledge through exploration and interaction with their environment. From this perspective, identifying whether a child can recognise a number or shape does not necessarily reveal how deeply they understand the concept or how they apply it in meaningful contexts. This suggests that while the assessment provides clear measurable data, it doesn't always show the full picture of early mathematical thinking. Children may be able to recognise numbers when asked, but that doesn't necessarily mean they understand what those numbers represent or would be able to use them within numeracy tasks.

The effectiveness of this resource also needs to be considered alongside the Numeracy Framework and the principles of the Curriculum for Wales. The framework focuses on helping learners develop numeracy skills they can use in meaningful, real-life situations. It

encourages progression and understanding, problem solving and the ability to apply knowledge across different contexts. In relation, this assessment does support the framework by identifying important foundation skills that underpin later numeracy learning. By highlighting gaps in early understanding, practitioners can plan targeted support to help learners progress. The regular monitoring of skills also reflects the Curriculum for Wales approach to assessment as an ongoing process that informs teaching and supports individual development. The Curriculum for Wales promotes authentic learning experiences where numeracy is embedded within play, exploration and real-life problem solving. Being able to recognise numbers on a page or identify shapes when asked does not necessarily mean a child understands what they represent or can use them meaningfully in everyday situations. As a result, while the resource is useful for identifying early skills, it may not show the full picture of numeracy competence expected within the Welsh curriculum.

Overall, this practitioner-led assessment is an effective tool for identifying and monitoring early numeracy skills. Its structured format, simplicity and repeated use across the academic year provide clear measurable data that supports targeted teaching and intervention. It offers practitioners insight into individual learner development and helps identify emerging gaps in foundational knowledge. However, the assessment also has limitations. Its reliance on independent performance may disadvantage some learners, particularly those with communication differences or minimal engagement. The structured, adult-led format does not fully align with play-based early years pedagogy, and the focus on discrete skill recognition may not reflect deeper conceptual understanding or real-life application. For these reasons, the assessment is most effective when used as one component of a broader assessment approach rather than as a standalone measure of numeracy competence. When combined with play-based observation and professional judgement, it can contribute meaningfully to understanding and supporting learner progression in line with the principles of the Curriculum for Wales.

Reference List:

Piaget, J. (1952) *The origins of intelligence in children*. 2nd edn. New York: International Universities Press.

Skinner, B.F. (1953) *Science and human behavior*. New York: Macmillan.

Welsh Government (2021) *Curriculum for Wales: Framework guidance for practitioners*. Cardiff: Welsh Government. Available at:
<https://www.gov.wales/curriculum-for-wales-framework-guidance-for-practitioners>
(Accessed: 28 February 2026).

Welsh Government (2020) *Guidance on progression and assessment arrangements for Curriculum for Wales*. Cardiff: Welsh Government. Available at:

<https://www.gov.wales/guidance-progression-and-assessment-arrangements-curriculum-wales> (Accessed: 28 February 2026).

Welsh Government (2013) *National Literacy and Numeracy Framework*. Cardiff: Welsh Government. Available at:

<https://www.gov.wales/national-literacy-and-numeracy-framework> (Accessed: 28 February 2026).