

Theresa Angier
ECIE5002
Numbers Count

Portfolio
Student Number: 2417258

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Why is good numeracy important?

From the moment individuals begin their day, numbers play an important role in everyday life, whether using alarm clocks, transportation schedules, or routine financial transactions such as purchasing coffee on the way to work. Regardless of context, numbers are fundamental to effective daily functioning, enabling individuals to organise time, manage resources, and navigate modern society (Pro Bono Economics ,2025). This essay will discuss why numeracy is important.

Although mathematics and numeracy are closely related, maths is the broader academic subject encompassing areas such as algebra, geometry, calculus. Numeracy, on the other hand, refers to the practical application of basic mathematical concepts in everyday life, such as managing money, budgeting, and interpreting data. Therefore, while there is a clear link between the two, they are not the same (AQA, 2023). A good understanding of numeracy is essential for the effective functioning of society. Individuals with a good understanding of numeracy are better equipped to manage finances, access employment, and participate fully in social and economic life. Whereas Research by Parsons and Bynner (2006) highlights that adults with poor numeracy skills are more likely to experience unemployment, lower earnings, and reduced social participation. Highlighting how numeracy is closely linked to wider issues of inequality, and social inclusion.

It is reported that the annual cost to the UK economy due to poor numeracy is £25 billion annually. (National Numeracy 2021). For our economy to improve so must individual's numeracy skills, employers increasingly rely on a workforce capable of handling data, measurements and problem solving a cross a wide range of industries. Poor numeracy skills can limit national economic growth by reducing productivity and increase welfare dependency. Individuals with low levels of numeracy are more likely to be employed in a lower paid role. A lack of confidence with numbers is limiting career potential across all industries. It is estimated that one in four people with poor numeracy skills would be deterred from applying for a job (Foss, 2020).

When looking at poor numeracy skills we also must consider the impact it has on an individual from a social aspect, how it effects a person regarding their social wellbeing alongside the financial impact it has on a person. It is estimated that 39% of adults in the UK lack the confidence in managing money (Money and Pensions Service, n.d.). This can limit a person to engage confidently in everyday social situations that require numerical understanding, such as sharing costs, understanding contracts and agreements. This can lead to anxiety, and avoidance in social situations, leading to feelings of embarrassment and exclusion, overtime, these challenges can contribute to social isolation reducing an individual's ability to engage in the community When it comes to career progression, having a poor understanding of numeracy skills can affect a person not only from a financial point of view whereby they are less likely to have a high pay job or apply for promotions due to lack of confidence. This can lead to poor mental wellbeing and increased stress, as the ongoing fear of being unable to pay bill or provide for one's family places significant pressure on individuals. In some cases, this pressure may lead people to seek alternative means of

obtaining money. The Young offenders research report in 2010 reported that 51% of young people in custody had numeracy skills at level 1 which is below the expected of a 7 year old (Hurry, Brazier and Wilson, 2010, p.8) and are more likely to reoffend.

Financial Literacy is defined by the Department for Business, Innovation and Skills (2012) '*As being able to make informed judgements to take effective decisions regarding the use and management of money*'. Having poor numeracy skills can have a lasting effect on an individual when it comes to planning their future. Being unable to understand how to budget how pensions work, an individual with low numeracy skills is less likely to have a private pension leaving them reliant on state pension, it limits a person's understanding and confusion on how to check and manage their pensions (Age UK, 2024). Individuals with less numeracy skills are more likely to carry debt into retirement.

In conclusion, numeracy is a vital life skill which underlines individuals to function effectively in everyday life, from managing time and money to participating fully in society. Numeracy plays a critical role in enabling individuals to make informed decisions in the real-world context. And highlights that poor numeracy has far reaching consequences, not only for individuals but also for the wider economy, contributing to reduced productivity, lower earnings and an increase reliant on welfare support. Furthermore, poor numeracy skills can limit an individual's social wellbeing, influencing their confidence and increasing anxiety this could increase their chances of social participation. In some cases, low numeracy can also be linked to increased vulnerability to criminal behaviour Particularly in young people. The link between poor numeracy can have a lasting effect into later life effecting retirement plans and understanding. As a society we need good understanding of numeracy to promote economic stability, social inclusion. It is vital that we strengthen our numeracy skills from an early age to support us throughout life. The National Day Nurseries Association (2025) states that children should be given time and space to engage in exploration and experiential learning with everyday objects to develop numeracy skills for example matching, sorting, comparing and ordering. This links strongly with Curriculum for Wales (2020), which highlights that in early years settings, play forms an essential part in the development of numeracy, enabling learners to solve problems, explore ideas that support learning in later years.

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The role of schools in developing numeracy skills

Before we dive into how schools can support numeracy, it is worth pausing to ask a simple question; what is numeracy really? Many people immediately think of mathematics, spoiler alert ... it is not just maths, Numeracy is something much broader and far more practical. It is about life skills that allows individuals to use numbers effectively in everyday situations. Think of tasks like budgeting for groceries, estimating travel costs, reading charts or analysing simple data (Steedman Thake, 2023). At its core, numeracy is about more than calculations it is about being confident with numbers and using them to make informed decisions in daily life, it's about being practical when it comes to managing money. By understanding numeracy in this way, we can see why supporting it in schools is not just about teaching maths, it is about preparing young people to navigate the real world with confidence.

Numeracy is:	Numeracy is not:
Feeling confident with numbers at work, in the news, on payslip, with your children, and when managing your money.	Feeling pressure to work things out quickly.
Feeling able to apply for a new job, or training, that involves numbers or data.	Memorising methods or times tables.
Using a calculator to work something out, or knowing what to Google... and being able to tell if you get a sensible answer.	Being afraid to get something wrong.
Being confident with time, for instance when planning journeys.	Feeling that you have to work things out in your head.
Understanding what percentages mean, and how they are used.	Being afraid to ask someone else for help.
Knowing when an estimate will do.	Maths that isn't useful in daily life.

Figure 1(National Numeracy, 2026)

How can schools support

Given the importance of numeracy beyond the classroom an important question arises '*How can schools effectively develop numeracy skills?*' One key approach has already been put into practice in Wales. The Welsh Governments policy on curriculum states that

“Numeracy needs to be integrated across the curriculum” (Welsh Government, 2023) This reflects a cross-curricular pedagogy where numeracy is not just confined to mathematics lessons alone but embedded across subjects such as science, geography and design and technology.

What is Pedagogy approach?

Well to put it in simple terms it's the way we teach, how we deliver the content of the curriculum. According to Cornerstones Education (n.d.) there are four main stages to pedagogy.

- **Engage** - A brief, stimulating activity that sparks curiosity, activates prior knowledge, and prepares learners for deeper learning.
- **Develop** - Knowledge through varied activities, building understanding, working together to build social skills
- **Innovate** - Knowledge through varied activities, building understanding, working together to build social skills
- **Express** - Opportunities for reflection, discussion, where students can express their understanding, demonstrate learning, and celebrate progress

We can link these stages to Bruner's spiral of curriculum, Bruner believed that learners build understanding by connecting new information to what they already know and build from this. His approach prepares learners for using their knowledge in real life, promoting critical thinking and problem solving (Talent-Ed Admin, 2021).

But what would that look like?

Let's look at Geography for example how would we embed Numeracy into this subject? Skills such as map reading, interpreting graphs, and analysing data all rely on good numeracy skills (Jones, 2017). This can also be said for food technology. Numeracy skills are used for weighing out ingredients, using ratios and proportions, are all ways of improving the learner's numeracy skills (WJEC, 2024). Students are

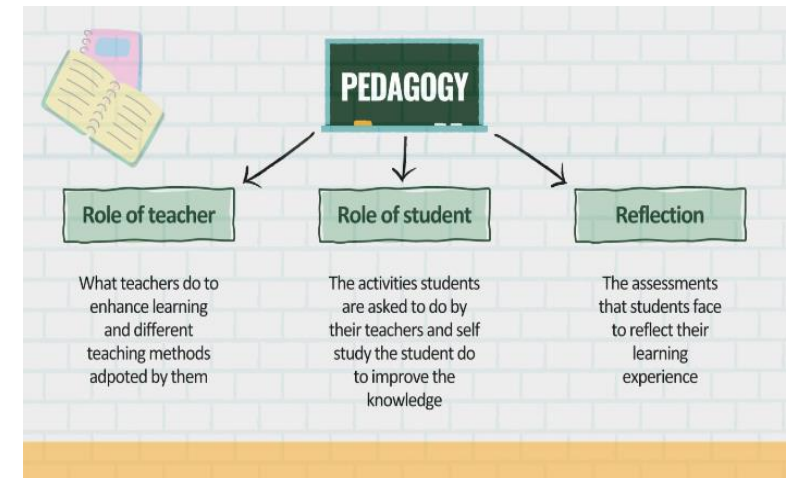


Figure 2 (Batagoda, V. 2026)

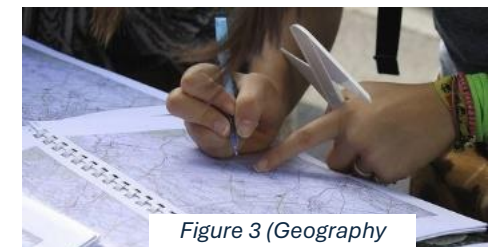


Figure 3 (Geography Association 2026)

developing their numeracy skills in a way that feels relevant and engaging often without realising they are actively applying mathematical concepts.

Interventions and study sessions

Within schools in Wales the national numeracy tests are carried out at least once a year. The result from these assessments helps schools to identify learners who may need extra support with their numeracy skills (Welsh Government, 2018). To support these learners, many schools put targeted numeracy interventions in place. These sessions are not in place of their math lessons but offered as an addition. They are usually delivered in small groups for around 30 minutes, two or three times a week, giving learners the chance to build confidence and strengthen key numeracy skills in a supportive environment.

Alongside Numeracy interventions, most secondary schools also offer study sessions for Year 11 pupils in the lead up to their exams. These sessions provide additional support, and opportunities to address gaps in understanding, helping learners to feel more prepared.

What about the Parents and carers?

As educational settings we can put strategies in place to support the learners but [what if the parents struggle with numeracy and how can we support?](#)

Plain Numbers (n.d.) highlights that it is estimated that nearly half of working age adults have numeracy skills of primary school children which raises an important question: [How can schools expect parents and carers to support their children with numeracy if they are struggling themselves?](#)

In my own educational setting, this challenge is addressed through strong parental engagement, which aligns with the Curriculum for Wales emphasis on partnership with families and communities (Welsh Government, 2022). Our family engagement officer regularly works with parents, offering numeracy workshops that help build their confidence, develop their skills, and improve their understanding of how mathematics is taught in schools today. By supporting parents in this way, schools can strengthen home and school partnerships and create a more positive environment for developing numeracy skills,



Figure 4 (Plain Numbers. 2026)

In short, schools can support learners numeracy skills in many ways, but the key is to make learning engaging, fun, and relevant. When numeracy feels meaningful, learners are more likely to progress. Through cross-curricular teaching, structured pedagogy, and targeted interventions, schools can support learners at different stages of their numeracy development. However, the responsibility does not end in the classroom. By working closely with parents and carers, and by creating opportunities for family engagement, schools can help build confidence in numeracy both at home and in school. When schools, families and communities work together to develop numeracy skills, children are better equipped to thrive, helping to create a stronger more confident future for everyone.

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Figure 3(Capilot,2026)

More Than a Game: Monopoly as a Resource for supporting numeracy skills

The Educational value of Board Games

Board games are more than just a pastime; they are a means of developing cognitive and social skills in an engaging and interactive way (Anne-Marie, 2024). Unlike traditional classroom activities, board games offer a dynamic learning environment where players actively participate and learn through experience.

Purpose of the Game

The purpose of this resource is to enhance learners understanding of the importance of numeracy skills in practical context. **Monopoly** engages players in a variety of mathematical activities, including money, calculating rent, and making financial decisions. Reinforcing numerical understanding and building confidence in using mathematics in everyday life. (GoHenry, 2024)

Key Numeracy skills Developed

- Adding and subtracting
- Multiplication
- Financial decision making and problem solving
- Place value and number recognition

At the start of the game, each player is given a set amount of money and moves around the board according to the roll of two dice. If a player lands on an unowned property, they may choose to purchase it; however, if the property is owned by another player, rent must be paid. The aim of the game is to remain financially solvent while forcing opponents into bankruptcy (Britannica Editors, 2026).

Target Learner Group

This resource is designed to support the development numeracy skills for learners with additional Learning Needs (ALN) who are working below age related expectations. Research indicates that learners with ALN are often more receptive to learning through play based (EMTuition, n.d). Board games provide opportunities for active engagement, decision making, turn taking, and following rules. This approach aligns with Froebel's theory of play, which emphasises that learners develop understanding through purposeful play in meaningful, real-life context (Froebel Trust, n.d.). This activity is carried out in an intervention group of 4 players.

Recording of Learner Progress and Learners self-assessment

When the game is first introduced, a timer is set for 35 minutes to allow students time to familiarise themselves with the rules and build confidence. As students understanding and confidence grows the time is increased, with the aim of reaching 50 minutes. This gradual increase supports learners with ALN by allowing skills to develop at a manageable pace. Progress in Numeracy skills is recorded using a learner progress sheet, providing clear evidence of progression and areas for further support. An example of this recording method is shown below.

Skill	Start of Game	Progress through the game	End/Outcome
Counting money	Needs help	Counts with support	Counts independently
Adding and subtracting	Makes errors	Improves with prompts	Calculates accurately
Giving correct change (Banker)	Needs the use of a calculator	Building confidence with support	Able to do this independently
Decision making	Random choices	Begins to think about cost of buying and selling	Makes informed choices
Confidence	Avoids being the banker	Participates with encouragement	Confident and engaging

Alongside this progress sheet, dedicated reflection time should be built into each session. This allows for verbal feedback and discussion, encouraging students to reflect on how they felt during the activity, what they found challenging, and what they felt confident with.

By actively involving learners in the assessment process and allowing them to share their thoughts and feelings about the activity, students are encouraged to take ownership of their learning. This approach promotes learners voice, supports self – reflection, and helps students understand their own progress, encouraging a more positive attitude towards numeracy development. (Cambridge International, n.d.).

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Video link to resource being used

[Monopoly Video Link](#)

To open please double click icon



Figure 1 Image of learners playing Monopoly (Angier)



Figure 2 Image of learners playing Monopoly (Angier)

References

Image 1 Angier. T (2026) *learners playing Monopoly* [Photograph]

Image 2 Angier. T (2026) *learners playing Monopoly* [Photograph]

Evaluation of the game monopoly to support learners with Numeracy skills

The purpose of this evaluation is to evaluate the effectiveness of the board game Monopoly, as an additional resource to support learners to improve their numeracy skills. This evaluation will explore how the game can enhance mathematical understanding through practical application. It will examine the strengths and limitations of using Monopoly as an alternative resource to support learners with additional learning needs (ALN) to increase their numeracy skills in a more engaging and practical way. This approach aligns with Piaget's theory cognitive development, which he suggests that children learn more effectively through active, hands-on experiences. Piaget believed there are 4 stages of development 'Sensorimotor (birth to 2 years), pre-operational (2 year to 7 years), concrete operational (7 years to 11 years) and formal operational (11 years and upwards' (Bates, 2023, p. 50). As Monopoly requires learners to calculate totals and make logical decisions and problem solving, it supports Piaget's Formal operational stage where abstract thinking and verbal reasoning start to develop (Cherry, 2025).

The Welsh government new curriculum for Wales (2023), states that mathematics and numeracy are fundamental to the wellbeing of future generations. It emphasises that *"developing strong numeracy skills enables learners to manage personal budgeting and financial literacy effectively, contributes positively to the Welsh economy, and enhances their future employment opportunities"*. This highlights the importance of providing meaningful and engaging opportunities for learners to develop numeracy skills within educational settings.

This evaluation focuses on 4 learners in Year 9 and Year 10 who attend a provision alongside their mainstream lessons to support them emotionally and academically. The activity was delivered over two sessions, and the aim was to develop students' numeracy skills through playing the game. NumberWorks'nWords (2024) explains how Monopoly helps to develop basic numeracy skills in a way that doesn't feel like maths, players must add and subtract the cost of their properties, calculate rent and manage money transactions. The ongoing calculations reinforces core numeracy skills such as addition, subtraction and money management.

When the game was first introduced, the students appeared intrigued. Only one student had previously played the game, so it was largely a new experience for the group. As a group we went over the rules and structure to ensure everyone understood the objective of the game, as there was one student who had already played before, it was decided that they would be the banker for this session with the exception that another student would step into the role on the second session. Due to time restrictions and the fact that the game was unfamiliar to the majority of the students, I set a timer for 30 minutes during our first session. This allowed the students to become familiar with the concept of the game, including handling and calculating money, and understanding turn taking without feeling overwhelmed. The time limit also helped maintain focus.

During the first session students struggled to understand the concept of the game and more noticeably calculating change from larger monetary amounts, but with encouragement and

support they started to settle into the task. This aligns with the behaviourist theory of Skinner, who argued that reinforcement shapes behaviour (Bates,2023). By continuous praise, encouragement, and positive feedback students became more confident and engaged. As Skinner suggests, behaviours that are positively reinforced are more likely to be repeated (First Discoverers, n.d) therefore the supportive responses provided during this first session contributed to improved participation and focus as the session progressed.

The second session was more successful, with learners demonstrating increased enthusiasm and looking forward to participating. Notably, one learner volunteered to take the role of the banker, indicating growing confidence. This session was extended to 50 minutes with the use of a timer which appeared to provide structure. Unlike the first session, the learners required significantly less adult support, demonstrating more independence. They relied less on adult assistance and began supporting one another when needed. This progression aligns with Vygotsky's theory of social development and his theory of Zone of Proximal development (ZPD), where learners gradually require less support from adults increasing peer support to extend their learning and gradually independently (Aubrey and Riley, 2022). As the game progressed learners demonstrated increased confidence when calculating change from larger monetary amount. This suggests that repeated exposure to the game not only improved their understanding of how to play the game but also strengthened their overall numeracy skills. This progression can be linked to Skinner's behaviourist theory, which suggests that repeated practice and reinforcement strengthen learning (Pound, 2005, p.43). Through repeated exposure to the game, learners received feedback and reinforcement for correct calculations, which helps to increase their confidence in numeracy skills.

Overall, I felt that the learners generally engaged throughout the activity, there was a marked improvement from session one to session two regarding both their confidences and the numeracy skills. However, there were notable drawbacks that should have been factored in from the start. Given the students had additional learning needs (ALN), the complexity of the game presented certain limitations. While initial engagement was positive, it became apparent that sessions lasting longer than 50 minutes risked a decline in concentration and participation. Learners with ALN struggle to maintain focus after a long period of time and find it harder to concentrate than their peers, often requiring additional support (Welsh Government, n.d.). A simplified version of the game, such as junior Monopoly, or a version with fewer rules, would probably have been more suitable for this group and could have better supported there learning outcomes, allowing them to develop their confidence in numeracy skills in a more accessible way. Further adjustments could have also improved the learning experience. For example, rather than introducing the full version of the game immediately, the sessions could have been chunked, one session focusing on addition and subtraction and another on budgeting. This approach may have given a better outcome of the game and would have possibly been less frustrating.

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