Subject Specific SEND

Maths

Communication & Interaction	Cognition & Learning
Challenges **Pupils may have:** • Difficulty understanding verbal instructions: Struggling to follow spoken explanations of mathematical concepts. • Challenges with expressing mathematical reasoning: Finding it hard to articulate their thought process or answers. • Problems with social communication: Difficulty working in pairs or groups, impacting collaborative problem-solving activities. **Provision** **Teaching staff do:** ✓ Use clear, concise language: Simplify instructions and explanations to ensure understanding. ✓ Model mathematical reasoning: Demonstrate how to articulate thought processes and solutions. ✓ Encourage peer collaboration: Facilitate group work and pair activities to enhance social communication skills. **Teaching staff provide:** ✓ Visual aids: Use diagrams, charts, and visual timetables to support understanding. ✓ Structured routines: Implement consistent classroom routines to reduce anxiety and improve focus. ✓ Communication tools: Provide sentence starters, word banks, and graphic organisers to help pupils express their ideas.	**Challenges** **Pupils may have:** • Memory issues: Trouble remembering mathematical facts, procedures, and sequences. • Difficulty with abstract concepts: Struggling to grasp concepts such as place value, fractions, or algebra. • Slow processing speed: Taking longer to complete tasks and understand new information. **Provision** **Teaching staff do:** ✓ Adapt instruction: Tailor lessons to meet individual learning needs and pace. ✓ Use concrete examples: Relate abstract concepts to real-life situations to enhance comprehension. ✓ Provide regular feedback: Offer constructive feedback to reinforce learning and build confidence. **Teaching staff provide:** ✓ Manipulatives: Supply physical objects like counters, number lines, and base-ten blocks to aid understanding. ✓ Visual supports: Use visual aids such as anchor charts and step-by-step guides. ✓ Memory aids: Provide mnemonic devices and repetition exercises to reinforce key concepts.

Social, Emotional & Mental Health	Sensory/Physical
Challenges **Pupils may have:** • Anxiety around maths: Feeling stressed or anxious about maths lessons and assessments. • Low self-esteem: Lack of confidence in their mathematical abilities, leading to disengagement. • Behavioural issues: Disruptive behaviour stemming from frustration or inability to cope with the demands of the curriculum. **Provision** **Teaching staff do:** ✓ Create a supportive environment: Foster a classroom atmosphere where mistakes are seen as learning opportunities. ✓ Build self-esteem: Use positive reinforcement and celebrate small achievements. ✓ Teach coping strategies: Incorporate mindfulness and relaxation techniques to manage anxiety. **Teaching staff provide:** ✓ Safe spaces: Designate areas in the classroom where pupils can take a break if feeling overwhelmed. ✓ Behavioural support plans: Develop individualised plans to address specific behavioural challenges. ✓ Peer support: Encourage buddy systems and peer mentoring to build social connections.	**Challenges** **Pupils may have:** • Fine motor skills difficulties: Struggling with tasks that require precise movements, such as writing numbers or using manipulatives. • Visual or auditory impairments: Difficulty accessing visual aids or hearing instructions clearly. • Fatigue or physical discomfort: Physical conditions that affect concentration and stamina during lessons. **Provision** **Teaching staff do:** ✓ Adapt physical tasks: Modify activities to accommodate fine motor skill difficulties. ✓ Use multisensory approaches: Incorporate auditory, visual, and tactile elements into lessons. ✓ Monitor fatigue: Be aware of physical discomfort and provide breaks as needed. ✓ **Teaching staff provide:** ✓ Assistive technology: Offer tools like magnifiers, large print materials, and audio instructions. ✓ Flexible seating: Arrange seating to accommodate physical needs and ensure comfort. ✓ Accessible resources: Provide materials in various formats (e.g., digital, large print) to ensure accessibility.

Primary Maths

Planning Inclusive Lessons

Influenced by teaching methods seen across the world, maths planning has adopted a mastery approach, with the lesson objective planned to ensure all learners are able to engage in the learning, no matter their prior attainment levels. The overall objective of mastery is to ensure each learner is confident with a concept, before moving on to the next. Where previously maths lessons may have been differentiated across learning objectives and tasks, with the mastery approach, most learners will be working towards a common outcome, with teaching and learning tailored and scaffolded to meet individual needs. Some learners may require a more personalised approach, including specific learning outcomes and provision to develop foundational skills.

Where possible, the whole class should be working on the same material and tasks should not be differentiated, but instead increase in difficulty and depth. Learners will have increased self-esteem as they work on the same tasks as their peers, as well as a more secure understanding of a concept. The aim of the lesson becomes about all learners meeting the selected objectives, and opportunities for deepening the learning presented as and when learners are ready. This involves applying the taught knowledge in different contexts and developing a long-term understanding which can be adapted to answer a variety of problems.

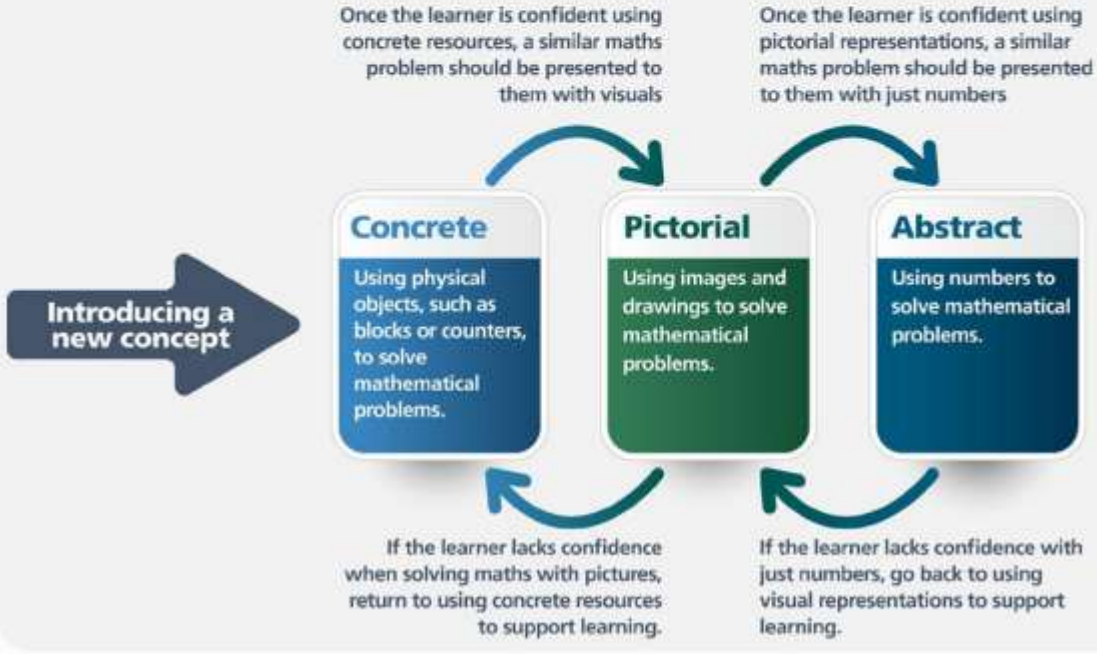
Instead of differentiating through task, those who require extra support should have additional input prior to the lesson, be part of more focused group work to go through an activity, and/or additional opportunities to practice. When planning lessons, it is important to consider a learner's prior attainment within the area of maths, as some learners will have strengths and learning gaps within the subject and should receive more focused support only when needed. In addition, it is beneficial to provide resources or visuals which could support these learners in meeting the same objectives as their peers.

Mastery includes the use of resources and representations to help learners see the structure of the maths; learners with SEND may require the support of these resources for a slightly longer period but should be scaffolded to develop independence in engaging with the mathematics without the resource.

Planning should be reactive to the needs of the class, and although it is beneficial to have an aim for the end of the week or unit, learners' progress should be reflected upon daily and the subsequent lesson should be adjusted to ensure the specific needs of the learners are being met. This in turn leads to more of the class being 'secure' with a concept, before teaching moves on.

Concrete, Pictorial, Abstract (CPA)

This method of teaching and learning uses objects and pictures to ensure a learner has understood an abstract mathematical concept. As maths is intangible, it is beneficial to introduce a concept with the use of concrete resources, e.g., blocks or counters. This helps to apply an abstract idea to practical resources, encouraging the learner to make connections between the two. Once confident with the concrete resources, the learner can then move to using pictures and diagrams to support their learning, before finally being encouraged to try the same maths questions without the scaffold. As the learner moves from concrete to pictorial to abstract, it is important they are given the opportunity to compare representations from each stage, to aid them in making connections and develop a secure understanding. Although some learners may not feel they need concrete resources or visual prompts, all learners should be encouraged to go through this process as a bridge to working in the abstract, to help them make connections and deepen their mathematical understanding.



Primary Maths

Creating an Inclusive Environment

Maths lessons should not be silent. It is important learners feel able to work independently, but they should also work well alongside their peers. The best maths learning happens when learners can talk through their ideas with a teacher or a partner, and therefore it is good to encourage this productive discussion during lessons. When planning opportunities for talk, ensure that all learners have the support they need to access these discussions, which could include scaffolding such as sentence frames, visual support and/or peer partners.

It is also important all learners have had the opportunity to use concrete resources, such as bead strings or counters, to support their learning. Often this works best if a concept is introduced with concrete resources readily available for the entire class to use. Once learners have been shown how to use the equipment to support their learning, they can decide whether they wish to use it or not. Learners may need the support of the teacher in making this decision – some may cling to the resource for security, whilst others may feel embarrassed to use the resource if other learners are not.

As maths is a subject where often there is an 'objective' right or wrong answer, learners can lack resilience or confidence in their own ability if they feel as though they are consistently getting things wrong. Learners can also lack resilience and confidence due to having large gaps in their learning. It is important to ensure learners are given equal opportunities to learn core knowledge, so that they are less likely to make mistakes. Learners can also benefit from a culture where mistakes are embraced and viewed as a part of the learning process.

Linked to this, it is useful to point out, carefully, what a 'wrong answer' to a question could be, as this helps learners with lower confidence to demonstrate their understanding and develop their reasoning.

Curriculum Considerations

Key Stage 1

- Learners should have 1 to 1 correspondence when counting.
- Learners should develop automaticity in addition and subtraction facts to and within 10.
- Ensure learners have a concept of 'more than' and 'less than' and can describe the relative sizing of number.
- Encourage learners to represent numbers in many different ways, in pictures, as a calculation, in words.
- Ensure learners can explain the place value of 10s and 1s.
- Use resources such as tens frames, Numicon and base 10 blocks confidently, to support learning where needed.

Key Stage 2

- Ensure learners are secure with all times tables (by end of Year 4), as this acts as a foundation for other maths concepts.
- Learners should have secure understanding of place value, up to 10,000 and beyond.
- Learners should begin to apply their knowledge of number and written methods to reasoning problems.

The Main Principles of Mastery

The core principle behind mastery is that learners should develop a secure and long-term knowledge of mathematical concepts through carefully planned lessons, which gradually and strategically build on prior learning. This teaching style should be constantly revisiting and building on prior learning, helping to make connections and develop depth of understanding.

NCETM have broken down the key principles of mastery into five strands: Coherence, Representation and Structure, Mathematical Thinking, Fluency and Variation. These are useful to consider when planning a unit, to ensure all elements of mastery are covered.

Primary Maths

Strategies to Scaffold Learning

How can I support learners who struggle to retain vocabulary?

- Be conscious of the range of vocabulary learners are exposed to. There are often several different words for one mathematical concept (e.g., add, sum, total, plus). Learners will need these words to be defined each time a new one is introduced and may need questions to be rephrased to understand their meaning. Learning should be documented in the classroom and referred to within and across lessons, for example on a working wall.
- Before a concept is introduced to the whole class, take time to familiarise chosen learners with new vocabulary and its meaning. This will give those learners greater confidence, as they feel confident when this same idea is introduced to the whole class.
- Use of visuals and actions can help to remind learners of the meaning of a word, or how it links to a mathematical symbol.

How can I support learners who struggle to access lessons because of literacy difficulties?

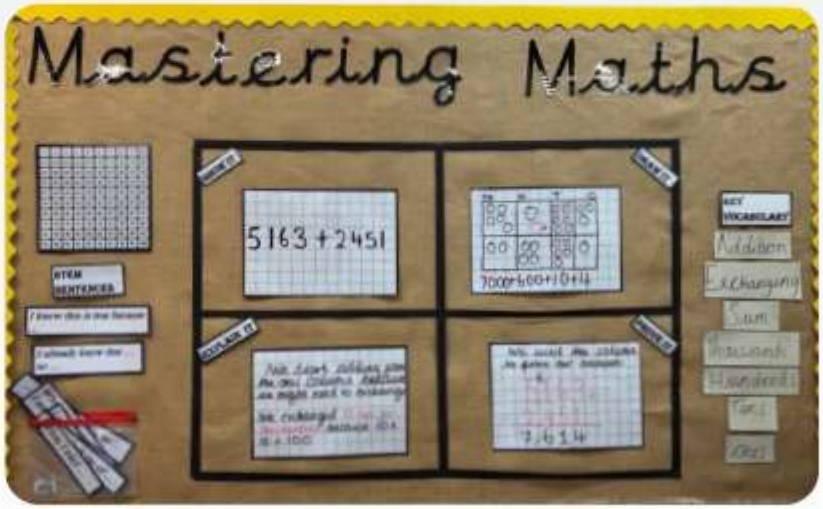
- If solving word problems, consider deploying an adult or pairing a learner with a confident peer to read the questions aloud to relieve the pressure of decoding the language.
- Some learners may benefit from 'drawing' the word problem, so that after a question is read, the learner has an image to refer to. This can enable a learner to 'see' the information they are missing, and decide what they need to work out, so that they can solve the word problem.
- Use of concrete resources and visuals is extremely important in helping learners to access questions.
- Ensure worksheets are laid out clearly and learners are not overwhelmed with a page of questions. Some learners may require different resources, which could include plain paper or enlarged square paper, to access set work.

How can I support learners who need additional time to develop conceptual understanding?

- Use intervention time to play games that consolidate a new or tricky concept with an adult.
- Use pre-teaching to give some learners a head-start.
- Have clearly laid out worked examples for these learners to refer to when working independently.
- Ensure tasks are scaffolded so that the learner can focus on the planned objective, for example prewrite information which is non- essential to the learning (date, learning intention), so the learner can focus directly on the skill being taught.
- Use representations learners are familiar with to transfer and connect similar ideas. For example, in Year 1, they use a tens frame that shows ten ones is equal to one 10, and then in Years 4 and 5 a tens frame could be used to show ten tenths is equal to 1.

How can I support learners who struggle with number fluency?

- Help learners to practise fluency outside of maths lessons, e.g., during transitions the whole class could count in 5s as they move from the carpet to their tables.
- If a particular fluency skill is required in a lesson (e.g., recalling the 5 times table), ensure learners practise this skill at the start of the lesson. During the retrieval practice, if needed, learners can have concrete resources or visual support, such as a times tables square, to remind them of number facts.
- Use games as part of regular intervention, to practise basic number skills and help retain fluency facts. Examples of maths games can be found on Cambridge University's NRiCH Project.



Primary Maths

How can I support learners who struggle with attention?

- When modelling, encourage learners to make jottings, or copy each step out, onto a whiteboard at the same time.
- Be flexible with how you deliver your input. It might not always be necessary to have all learners involved at once. Some learners could be completing an accessible activity independently at tables, whilst others are listening to the teaching input, and then they swap. This helps to keep inputs focused and short, maintaining the attention of those who struggle.
- Give learners a target number of questions to do – when working towards a goal, learners are more likely to be focused.
- Use behaviour-specific praise, where you specifically identify what the learner has done well, to motivate learners and encourage their sustained attention to the task.
- Incorporate some questions which appeal to a learner's interests, for example making questions about a particular character they like. This will help to maximise engagement and motivation.

How can I support learners who struggle with change and transition?

- Establish routines and expectations early in the year, ensuring certain transitions, activities and games are repeated regularly to increase familiarity.
- To inform assessment and planning, ask the learner how they found a concept or lesson, at the end of a session.
- Set a target amount of work to complete and prepare learners by giving a 5-minute warning before the end of the activity. Allow them to take a few extra minutes to finish off if they need it.

How can I support learners who lack confidence in their own mathematical ability?

- Send home photocopies of successful pieces of work to share with parents/carers.
- Pose open-ended questions to the class, which have multiple answers. Ensure all learners have equal opportunities to answer.
    - 'Odd One Out' is a great example of this kind of activity; Learners are presented with 3 different numbers on the board and are asked which is the odd one out and why. There is no 'right' answer to this question, and therefore it is accessible to all members of the class. Answers could include '10 is the odd one out because it's the only multiple of 5' or '8 if the odd one out because it's got two circles'. Being able to give an answer, no matter the complexity, helps to validate all learners.
- Mark learners' work in the moment, rather than at the end of the lesson. If the learner can see they are on track as they are completing a task, this will motivate them to keep going and will boost their confidence. Using this method also means you can correct and explain any mistakes as they happen, helping learners avoid embedding misconceptions.
- Ask learners to be a help in the lesson preparation process, e.g., selecting images which will be used in the maths lesson or asking to set up resources. This will help the learner to feel more comfortable as they begin the lesson.

The guidance in this document supports planning for learners with SEND by highlighting the most important concepts within the national curriculum so that teaching and targeted support can be weighted towards these. For further guidance, please refer to Teaching mathematics in primary school.

Case Study

A child in Year 1, who did not have secure number sense, struggled to access the curriculum as they could not order or compare numbers between 1 and 20.

An intervention was set up where the child spent five minutes a day with a suitably qualified adult, working on ordering numbers. Some of the tasks included rearranging number cards, counting objects around the school, and spotting the missing number on a number line. It was found that this short, sharp intervention and daily focus on this one skill helped to improve their fluency and in turn, their access to the curriculum.

Case Study

A child in Year 6 struggled to access lessons alongside the peers in his class; in maths, his individualised learning targets were aligned with th Year 3 curriculum.

At the beginning of a new topic, in line with a mastery approach, his teacher reflected on his individual targets and prior attainment while planning the whole-class lesson. This process demonstrated that the child did not yet have the foundational skills needed to access the planned work in line with his peers.

To plan learning activities for the learner, aligned to the topic, the teacher then used formative assessment to identify particular skills within the topic as areas for the child to develop, e.g., adding multiples of 10 to any given number. Planning for the child then followed a format where he had focussed input from the teacher early in the week. He then repeated a similar activity independently for the following few lessons, with a review at the end of the week. Alongside planned learning activities, the child had the opportunity to play maths games alongside an adult or peer to build on foundational maths skills.